

## I. SCOPE OF WORK

### A. DEFINITIONS:

For the purposes of this solicitation the following terms and definitions shall apply:

1. **Active Corrective Action**: The scope of work to be implemented under this solicitation as defined in the Technical Specification Package (Section I.A.15).
2. **Area of Concern**: The horizontal and vertical area, identified in the Appendix, in which concentrations of petroleum chemicals of concern have been quantified and/or can be relatively determined by actual data and subsequent interpretation using accepted scientific principles.
3. **ACQAP**: Annual Contractor Quality Assurance Plan
4. **Catastrophic Occurrence**: An event (e.g., hurricane) that results in a declared state of emergency and directly and substantially affects the Site Rehabilitation Contractor's operations at a site.
5. **Chemicals of Concern (CoC)**: Specific petroleum constituents that are identified for monitoring and corrective action.
6. **Corrective Action Completion Time (CACT)**: The time in months, submitted by the Site Rehabilitation Contractor, and acceptable to the South Carolina Department of Health and Environmental Control(DHEC), necessary to reduce Free Phase Product (FPP) thicknesses to at or below 0.01' and CoC concentrations to below site-specific target levels (SSTLs), verify attainment of all payment milestones as set forth in Section II.A.9, and remove and/or properly abandon assessment and corrective action components (wells, treatment lines, etc.) as determined by DHEC. All activities must be completed within 5 years of the Financial Approval Date. Any request for an extension beyond the 5-year time frame must be made in writing by the Owner/Operator and the Corrective Action Completion Time may be extended with a written no cost extension granted by DHEC.
7. **Corrective Action Cost**: The total amount established via the procurement process to complete the scope of work/specifications detailed in the solicitation unless otherwise modified pursuant to the terms of this solicitation. The maximum allowable corrective action cost DHEC can establish is dependent on the remaining State Underground Petroleum Environmental Response Bank (SUPERB) account balance for the individual release, less any costs required for verification of payment milestones. All corrective costs above the maximum amount allowable, as established in S.C. Code Ann. § 44-2-40 (2018), are the responsibility of the owner/operator.
8. **Corrective Action Plan (CAP)**: A document submitted by the Site Rehabilitation Contractor that outlines and details proposed corrective action(s) and contains a timetable consistent with the CACT, to include any subsequent CAP addendums or amendments.
9. **Corrective Action Plan Implementation Date**: The date on which the Contractor initiates corrective action (i.e., physical treatment activities such as excavation, extraction, injection, etc.) under the approved CAP. The date must be within 30 days of receipt of a Notice to Proceed issued by DHEC.

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10. Day: For the purpose of this solicitation, any reference to day(s) will be intended as calendar day(s) and not business day(s).
11. Free-Phase Product (FPP): Petroleum lighter than water non-aqueous phase liquid (LNAPL) identified for monitoring and corrective action.
12. Payment Milestone: Milestones set forth in Section II.A.9 of this solicitation for which the Site Rehabilitation Contractor will receive payment under the Technical Specifications Package based on achieving the SSTLs identified in the appendix.
13. Quality Assurance Program Plan For The Underground Storage Tank Management Division (UST QAPP): The UST QAPP Revision under implementation at the time this solicitation is posted.
14. Technical Specifications Package: This solicitation document, to include the attached Appendix, which provides site-specific information and defines the scope of work to be completed at the site(s) under this solicitation.

### B. SOLICITATION STATEMENT

The Underground Storage Tank (UST) Management Division of DHEC is seeking services on behalf of CIRCLE K STORES INC to perform active corrective action of a petroleum release or petroleum releases at a regulated underground storage tank site in accordance with the payment milestones as set forth in Section II.A.9. The objectives are to prevent significant further migration of FPP and CoC, to remove measurable (>0.01') thicknesses of FPP, and to reduce CoC concentrations to or below SSTLs established by DHEC. All Applicants must be SCDHEC-certified Class I Site Rehabilitation Contractors and must remain in compliance with R.61-98 for the duration of the CACT.

### C. SCHEDULE OF DELIVERABLES

**The following table summarizes the deadlines for deliverables associated with this solicitation:**

Please note that DHEC must be notified 15 calendar days prior to any activities to be conducted at the site.

<b>DELIVERABLE DUE</b>	<b>DEADLINE</b>
Questions	By 5:00 pm Friday, November 15, 2019
Financial Approval Form	By 5:00 pm Monday, December 2, 2019 in sealed envelope

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UST QAPP Contractor Addendum or Site-Specific Work Plan for Initial Monitoring Report	Within 15 days from receipt of the Financial Approval Letter.
Initial Monitoring Report	Within 45 days from approval of UST QAPP Contractor Addendum or Site-Specific Work Plan for Initial Monitoring Report
CAP and UST QAPP Contractor Addendum or Site-Specific Work Plan for Corrective Action	Within 30 days of receipt of Notice to Proceed from DHEC for CAP Preparation
CAP Implementation	Within 30 days of receipt of Notice to Proceed from DHEC for CAP Implementation
CAP Implementation Report	Within 60 days of receipt of Notice to Proceed from DHEC for CAP Implementation
Corrective Action System Evaluation (CASE) Report	Semi-annually with initial sampling to occur 90 days after CAP Implementation and report due within 30 days of sampling.
Water Supply Well & Surface Water Sampling Results	Semi-annually with initial sampling to occur 90 days after CAP Implementation and report due within 30 days of sampling.
Update UST QAPP Contractor Addendum or Site-Specific Work Plan for Corrective Action	First quarter of each year and as needed until completion of corrective action.
Demobilization and Site Restoration	Within 60 days of receipt of Notice to Proceed from DHEC for Demobilization and Site Restoration.

**D. SITE SPECIFIC INFORMATION**

The scope of work defined in this solicitation is to be implemented at CIRCLE K 2720886, 4315 SAVANNAH HWY, RAVENEL, SC 29470, UST PERMIT #01589 for the release reported on AUGUST 02, 2018. A copy of the technical file will be available on-line at <https://scdhec.gov/environment/land-management/underground-storage-tanks/release-assessment-clean/active-corrective-0> until the CAP is approved. The technical file may also be reviewed at the Freedom of Information (FOI) Office located at the Sims/Aycock Building, 2600 Bull Street, Columbia, SC, 29201 (803-898-3882). **Appointment(s) to view the technical file may be scheduled on weekdays between the hours of 8:30 A.M. to 5:00 P.M. by calling the FOI Office at 803-898-3882. A brief technical summary, including maps and data tables, is attached in the Appendix.** UST Site Rehabilitation Contractors are strongly encouraged to review the file(s) to ensure a complete understanding of corrective action requirements. DHEC will presume, upon submittal of an offer, that the UST Site Rehabilitation Contractor has reviewed and understands all available information in the technical file.

## II. SOLICITATION REQUIREMENTS

### A. GENERAL REQUIREMENTS

1. **PAYMENT PERIOD:** The payment period will be effective from the date of financial approval until corrective action is complete as outlined in this solicitation.
2. **EQUAL OPPORTUNITY EMPLOYMENT:** Site Rehabilitation Contractors must agree to make positive efforts to employ women, minorities, and minority-owned businesses.
3. **AMENDMENTS:** All amendments to this solicitation shall be in writing from DHEC. DHEC shall not be legally bound by any amendment, interpretation or settlement that is not in writing.
4. **RESTRICTION:** the only official contact person at DHEC during the solicitation and financial approval process is STEPHANIE BRINEY. Site Rehabilitation Contractors are not to contact any other DHEC personnel or other contractors.
5. **FINANCIAL APPROVAL:** The UST Owner/Operator has the right to select a SCDHEC-certified Class I Site Rehabilitation Contractor to perform corrective action in accordance with the SUPERB Act (S.C. Code Ann. § 44-2-10 et seq.) and is not limited to Site Rehabilitation Contractors who respond to this solicitation. Therefore, financial approval may be made to a Site Rehabilitation Contractor who has been selected by the Owner/Operator but has not responded to this solicitation. The financial approval will be for the reasonable cost as defined in Section II.A.6. The selected Site Rehabilitation Contractor must agree to make positive efforts to employ women, minorities, and minority-owned businesses. **Pursuant to S.C. Code Ann. § 44-2-120(B), the Owner/Operator is ultimately responsible to DHEC for the actions of their selected Site Rehabilitation Contractor. Therefore, DHEC will pursue enforcement actions against the Owner/Operator if their selected Site Rehabilitation Contractor does not make satisfactory progress towards achieving the payment milestones as outlined in Section II.A.9.**
6. **REASONABLE COST:** The lowest corrective action cost submitted in response to the solicitation will determine the reasonable or SUPERB-allowable cost to complete corrective action as defined by the solicitation. DHEC reserves the right to reject any and all submitted Financial Approval Forms that propose Corrective Action Costs that are not advantageous to the State of South Carolina, that propose a CACT that is not protective of public health and the environment, and that propose remediation technology(ies) or method(s) that cannot be permitted in the State of South Carolina and/or that are not protective of public health and the environment.
7. **SITE WORK VERIFICATION:** The Site Rehabilitation Contractor will be required to treat the area of concern as defined in Section I.A.2 and as shown in the Appendix (Figure 1). Verification that FPP removal and interim payment milestones have been achieved will be based upon gauging/sampling results from the SSSL wells and sampling points listed in the Appendix, and extraction wells installed as part of corrective action. Verification that the final payment milestone has been achieved will be based upon sampling results from all wells and gauging points listed in the Appendix and all verification wells to be installed at locations and depths designated by DHEC (see Section III.B.11 for more details). It is understood that seasonal fluctuations in FPP thicknesses and CoC concentrations will occur. It is the intent of this corrective action to prevent further degradation of the aquifer(s) by continued migration of FPP

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and/or CoC into areas not previously impacted. If the corrective action allows FPP and/or CoC to migrate into areas not previously impacted, the Site Rehabilitation Contractor will be responsible for completing assessment activities necessary to re-define the impacted areas and for providing amendments to their CAP to address the additional impact.

8. **REPORTS:** Reports are to be submitted to DHEC on or prior to the established due dates unless otherwise approved in writing by DHEC. Deliver one paper copy and one electronic copy of each plan and report to: SCDHEC, Bureau of Land and Waste Management, UST Management Division 2600 Bull Street, Columbia, SC 29201. The electronic copy should be submitted on compact disk (CD) in Personal Data Format (PDF). All data tables should be in MS Excel or comparable format. One copy of each plan or report must be delivered to each party listed on the Distribution List included in the Appendix. The distribution copies may be electronic or paper as agreed upon by the party and the Site Rehabilitation Contractor. Based on permitting and other requirements, additional copies of plans and reports may be required by DHEC. DHEC will notify the Owner/Operator of the exact number of copies of each document to be submitted.
9. **INVOICING:** Invoices will be submitted to SCDHEC, Bureau of Land and Waste Management, UST Management Division, ATTN: Financial Section, 2600 Bull Street, Columbia, SC 29201, using the Corrective Action Invoice form. The initial invoice must be received at the above address within 4 months of CAP approval or funds will be uncommitted as required by S.C. Code Ann. § 44-2-40(B). If funds are uncommitted, the invoice will be held until funds become available. **Payment will only be made for achieving the payment milestones as specified in Section II.A.9. No partial payments will be made, except as outlined in Section III.B.4.** Payment be made on a pay-for-performance basis as follows:
  - a. Payment of 35% of the Corrective Action Cost will be made within 90 days following DHEC's receipt of an invoice and documentation that the Site Rehabilitation Contractor has completed the CAP implementation. All corrective action activities must be as described in the CAP and are subject to the limitations of S.C. Code Ann. § 44-2-40. The implementation should be documented in the CAP Implementation Report. The CAP Implementation Report must include the construction logs for all injection and/or extraction wells installed in accordance with the CAP.
  - b. Payment of 65% of the Corrective Action Cost will be made based on achieving interim and final payment milestones as verified in the SSTL wells and sampling points listed in the Appendix, and in all extraction wells, and in all verification wells. Payments will be made upon DHEC's receipt of invoices and documentation that the Site Rehabilitation Contractor has achieved the interim and final payment milestones of FPP removal 60%, 90%, and 100% reduction of the total CoC concentrations above the SSTLs **by the implementation of corrective action as outlined in the CAP and including any subsequent CAP addendums or amendments.** CoC concentrations and SSTLs are listed in the Appendix.
    - 1) The FPP removal payment milestone will be achieved when the FPP thickness does not exceed 0.01' in all SSTL wells and sampling points listed in the Appendix, and in all extraction wells. Payment of 10% of the Corrective Action Cost will be made upon verification (see Section III.B.11 for the method of verification) that measurable (>.01') FPP has been removed. **Achievement of this payment milestone must be verified by gauging conducted by DHEC.**



- 2) The first interim concentration reduction payment milestone will be achieved when 60% of the total CoC concentration above SSTLs in the SSTL wells and sampling points listed in the Appendix is removed. The formula listed in the site rehabilitation section of the UST QAPP will be used to calculate the percent total concentration reduction. Payment of 10% of the Corrective Action Cost will be made upon confirmation by Corrective Action System Evaluation report or upon verification (see Section III.B.11 for the method of verification) that at least 60% of the total CoC concentration above SSTLs has been removed.
- 3) The second interim concentration reduction payment milestone will be achieved when 90% of the total CoC concentration above SSTLs in the SSTL wells and sampling points listed in the Appendix is removed. The formula listed in the site rehabilitation section of the UST QAPP will be used to calculate the percent total concentration reduction. Payment of 10% of the Corrective Action Cost will be made upon verification (see Section III.B.11 for the method of verification) that at least 90% of the total CoC concentration above SSTLs has been removed. **Achievement of this payment milestone must be verified in accordance with Section III.B.11.**
- 4) The final payment milestone will be achieved when 100% of the total CoC concentration above the SSTLs (at the time the bid is posted) in the SSTL wells and sampling points listed in the Appendix has been verified to have been removed in accordance with Section III.B.11 AND Site Restoration has been completed in accordance with Section III.B.12-14. **Payment for the 100% removal of CoC above SSTLs and for Site Restoration will be made concurrently, ONLY when both have been achieved, and in accordance with the following conditions:**
  - a. 30% of the total Corrective Action Cost is allocated for achievement of 100% CoC concentration removal above SSTLs. **100% removal of CoC concentrations above SSTLs must be verified (during the second 100% verification quarter) in accordance with Section III.B.11 following two consecutive quarters with all corrective action activities completely ceased in order for DHEC to issue a written Notice to Proceed for site restoration.** CoC concentrations must not exceed SSTLs in all wells and sampling points listed in the Appendix, in all verification wells, and at any point in the area of concern.
  - b. 5% of the Corrective Action Cost is allocated for site restoration and will be paid upon DHEC's receipt of an invoice, verification in accordance with Section III.B.11 that 100% of COC concentrations above SSTLs have been removed (30% of Corrective Action Cost), and verification, by a final inspection by DHEC, that all assessment and corrective action components (e.g., piping, wells, trenches, etc.) have been removed from the site or properly abandoned (see Section III.B.11-14 for more details), and the facility and associated adjacent properties have been restored to the condition that existed prior to assessment and corrective action (Section III.B.13) (5% of Corrective Action Cost). **Site restoration must be completed within 60 days from receipt of a Notice to Proceed from DHEC confirming that 100% CoC concentration above the SSTLs is verified to have been removed and site restoration may proceed.**

10. **REVISION OF SSTLS:** SSTLs listed in the Appendix/Appendices have been established based on site conditions and existing receptors at the time of Technical Specification Package solicitation. DHEC reserves the right to revise the SSTLs (in effect reducing the work scope) at any time during the CACT if deemed appropriate as long as SSTLs do not become more stringent. **Revision of SSTLs does not constitute modification of this Technical Specification Package. Revision of SSTLs may result in cancellation of this Active Corrective Action in accordance with Section II.A.11. If revision of SSTLs results in Active Corrective Action cancellation, payment will be reduced in accordance with the actual CoC mass reduction percentage achieved when compared to the SSTLs at the time this solicitation was posted. If 100% of the revised SSTLs have been achieved, and site restoration is completed, 5% of the total corrective action cost will be paid. This final 5% of the Corrective Action Cost will be paid upon DHEC's receipt of an invoice, and verification in accordance with Section III.B.11, that 100% CoC mass reduction when compared to the revised SSTLs has been achieved, and by a final inspection by DHEC, that all assessment and corrective action components (e.g., piping, wells, trenches, etc.) have been removed from the site or properly abandoned (see Sections III.B.12-14 for more details), and the facility and associated adjacent properties have been restored to the condition that existed prior to assessment and corrective action (Section III.B.13). Site restoration must be completed within 60 days from receipt of a Notice to Proceed from DHEC confirming that 100% reduction of CoC mass when compared to the revised SSTLs has been achieved and site restoration may proceed.**
11. **LIMITATIONS:** The approved Corrective Action Cost will be final and will not be increased for any reason (e.g., unanticipated iron fouling of a system, wells clogging because of biological activity or sediments, damage by lightning, increased subcontractor costs, loss of utilities, modification to the system to meet the payment milestones, etc.) with the exception of: 1) unforeseen subsurface conditions as determined solely at the discretion of DHEC or 2) identification of additional FPP or CoC from a confirmed release that occurs subsequent to financial approval and that adversely impacts corrective action as determined by DHEC. Payment will only be made for achieving the payment milestones as set forth in Section II.A.9. No interim or partial payments will be made once corrective action is initiated, except as outlined in Section III.B.4. Once Active Corrective Action has been initiated, and in the event of a cancellation due to any of the conditions described in this Section, final payment, if appropriate, will be a percentage of the Corrective Action Cost as determined by DHEC. The percentage of the Corrective Action Cost will be reduced in accordance with the actual percent total CoC concentration reduction when compared to the SSTLs at the time the solicitation is posted, based upon last sampling results, as verified by DHEC in accordance with Section III.B.11, from all wells and sampling points listed in the Appendix and all verification wells, less the amount previously paid. Contractor-owned items used on-site for the corrective action that are damaged or destroyed by acts of nature, improper maintenance or handling, theft or vandalism will not be replaced or reimbursed by the SUPERB Account. The Site Rehabilitation Contractor cannot delay progress or suspend corrective action activities at the site without written approval from DHEC based upon a claim of a suspected new petroleum release from the UST system. Unless directed otherwise by DHEC, the Site Rehabilitation Contractor must continue to perform corrective action activities under this solicitation during any period of time during which a new petroleum release from the UST system is being investigated. The Site Rehabilitation Contractor must clearly demonstrate sufficient evidence of the release in the form of analytical test results or other demonstrative evidence to DHEC. The determination that a new petroleum release from the UST

system has occurred that post-dates the financial approval, and that adversely impacts corrective action at the site, is in the sole discretion of DHEC. **In the event that all payment milestones are not achieved within the CACT stated in Section IV.B.4 this Active Corrective Action may be cancelled, and the Owner/Operator will be held to the requirements in Section II.A.5.**

12. PERIODIC MEETINGS: DHEC may require periodic meetings, as necessary, with the selected Site Rehabilitation Contractor via teleconference, at DHEC, or at the site to verify progress of the Corrective Action.

## **B. SPECIFIC REQUIREMENTS**

1. SCOPE OF SOLICITATION: This solicitation is for corrective action at one site in South Carolina.
  - a. The CACT for the site shall be entered on the Financial Approval Form in Section IV.B.
    - 1) Time is of the essence in completing the site work to restore the aquifer and protect human health and the environment. Therefore, the UST Site Rehabilitation Contractor is encouraged to strive for efficient corrective action methods and to propose the shortest practical completion time for the site.
    - 2) The UST Site Rehabilitation Contractor shall enter the number of months in the space provided for the site in Section IV.B
2. INQUIRIES: A copy of the technical file will be available on-line at <https://scdhec.gov/environment/land-management/underground-storage-tanks/release-assessment-clean/active-corrective-0> until the CAP is approved. The technical file may also be reviewed at the FOI Office located at the Sims/Aycock Building, 2600 Bull Street, Columbia, SC 29201 (803-898-3882). All questions or requests for information must be submitted in writing to STEPHANIE BRINEY, FAX number (803) 898-0673, in accordance with the date specified in Section I.C. After this date, no further questions or requests for information will be addressed. A written response will be provided.

## **III. SPECIFICATIONS FOR CORRECTIVE ACTION**

### **A. GENERAL SPECIFICATIONS**

1. SUBMITTALS: All UST Site Rehabilitation Contractors must submit a completed Financial Approval Form. All submittals must be either hand-delivered or mailed in a sealed envelope to SCDHEC, UST Management Division, 2600 Bull Street, Columbia, SC 29201, ATTN: STEPHANIE BRINEY. The envelope must be marked as a Financial Approval Form for CIRCLE K 2720886, UST PERMIT #01589. The Form outlines an approach to achieve the payment milestones as set forth in Section II.A.9 (i.e., removal of measurable (>0.01') FPP and reduction of CoC to SSTLs) and contains the following elements:



- a. A description of the proposed treatment method(s) or technology(ies) for corrective action.
  - b. The amount of time in months to meet the payment milestones, install verification wells, and remove or abandon all assessment and corrective action components.
  - c. The total Corrective Action Cost (in U.S. dollars) to meet the payment milestones and to remove or abandon all assessment and corrective action components.
2. **MINIMUM REQUIREMENTS:** Corrective action will be considered complete when: 1) the CoC concentrations are verified to be at or below SSTLs in all wells and sampling points listed in the Appendix, in all verification wells, and at any point in the area of concern **for two consecutive quarters**; 2) all assessment and corrective action components (e.g., piping, wells, trenches, etc.) have been removed from the site or are properly abandoned; and 3) the facility and associated adjacent properties have been restored to the condition that existed prior to assessment and corrective action in accordance with Section III.B.13. See Section III.B.11 for the method of verification. Per R. 61-98, all site rehabilitation activities associated with a UST release must be performed by an SCDHEC-certified Class I Site Rehabilitation Contractor. The Site Rehabilitation Contractor will be required to adhere to all applicable portions of the UST QAPP and the Contractor's ACQAP. A copy of the UST QAPP is available at <https://scdhec.gov/environment/land-waste/underground-storage-tanks/release-assessment-clean/quality-assurance/>. All CAPs and reports must be sealed by a Professional Engineer or Professional Geologist registered in the State of South Carolina. All engineering reports, drawings and plans must be sealed by a Professional Engineer registered in the State of South Carolina. All laboratory analysis for CoC must be performed by an SC-certified laboratory. All monitoring, verification, injection and/or extraction wells must be installed and abandoned by an SC-certified well driller. All applicable certification, training, permits, applications, and fees associated with well installation; injection, discharge, treatment, or transportation of groundwater, air, or soil; construction or operation of a corrective action system; and any other action requiring a permit are the responsibility of the Site Rehabilitation Contractor. Any required business or occupation license and occupational safety and health training (e.g., OSHA) as defined by the laws and regulations of the United States of America, the State of South Carolina, the county or city is also the responsibility of the Site Rehabilitation Contractor. The terms and conditions of all applicable permits will be met. Any contaminated soil or construction debris, contaminated water, and FPP must be properly transported and disposed of, or treated at, an approved facility with prior approval from DHEC. Any costs for utilities construction and service (electric, telephone, sewer, etc.) required by the corrective action are the responsibility of the Site Rehabilitation Contractor.

## **B. PERFORMANCE REQUIREMENTS**

1. **QAPP CONTRACTOR ADDENDA/SITE-SPECIFIC WORK PLANS:** The Site Rehabilitation Contractor must submit a UST QAPP Contractor Addendum or Site-Specific Work Plan for the Initial Monitoring Report **within 15 days** from the date of financial approval. The Addendum or Work Plan for the Initial Monitoring Report must be approved by DHEC prior to initiation of work at the site. A UST QAPP Contractor Addendum or Site-Specific Work Plan for corrective action must be submitted with the CAP. The Addendum or Work Plan action must be updated during the first quarter of each year or as needed until completion of corrective action.

2. **CORRECTIVE ACTION PLAN:** The Site Rehabilitation Contractor must complete and submit a detailed CAP and UST QAPP Contractor Addendum or Site-Specific Work Plan for corrective action within 30 days from receipt of a Notice to Proceed from DHEC for CAP Preparation. Copies of the CAP must be distributed in accordance with Section II.A.8. The CAP must define the method(s) and technology(ies) proposed to achieve corrective action goals in a manner that is consistent with the CACT submitted by the Site Rehabilitation Contractor. **The corrective action method(s) or technology(ies) must be designed to prevent vapors from entering onsite or adjacent structures.** It must be shown, by use of scientific models, computations, or discussion, how FPP will be removed and CoC concentrations reduced by each method and technology proposed. Any assumptions used in a model will be listed or shown, as well as appropriate references. **The use of existing monitoring well(s) for injection, extraction, or FPP recovery purposes is not allowed.** Accordingly, the CAP may propose installation of additional injection, extraction, or compliance wells. General construction details will be included in the CAP (e.g. install 4 extraction wells, install 8 injection wells, excavate 3,000 cubic yards of impacted soils, etc.) as well as details of assessment and corrective action component abandonment and/or removal.

A corrective action timetable that includes demobilization and site restoration (Section III.B.12-14) will be provided by the Site Rehabilitation Contractor. As corrective action is required to be completed within 5 years from financial approval, the submitted timetable shall not exceed 5 years in any case. The timetable shall itemize when the Site Rehabilitation Contractor expects to meet the FPP removal, 60%, 90%, and 100% interim payment milestones. During corrective action implementation, this timetable may be adjusted (as approved in writing by DHEC) if circumstances beyond the control of the Site Rehabilitation Contractor arise. Any request for an extension beyond the 5-year time frame must be made in writing by the Owner/Operator and the CACT may be extended with a written no cost extension granted by DHEC. Any extension request or submittal of a revised timetable should include an updated CACT. If the Site Rehabilitation Contractor fails to meet the interim payment milestones in the proposed time frames, this Active Corrective Action may be cancelled, and the Owner/Operator will be held to the requirements in Section II.A.5.

DHEC will review the CAP and initiate a public notice period for a maximum of 30 days. The names and addresses of the owners of all impacted properties and all properties located adjacent to the impacted properties are provided in the Appendix. The Site Rehabilitation Contractor may be required to attend and provide input at one or more public meetings upon request by DHEC. Any CAP amendments and modifications resulting from the public notice must be submitted within 15 days of notification by DHEC. The CAP and any amendments or modifications must be sealed by a qualified Professional Geologist or Engineer registered in the State of South Carolina. The UST Owner/Operator and any other affected property owners will be consulted and will approve the location of the corrective action system. Any aboveground part of the system that is to remain on-site for longer than 30 contiguous days must be secured within a fenced area or building.

3. **PERMIT APPLICATIONS:** The Site Rehabilitation Contractor must complete and submit all applications for permits (injection, NPDES, BAQC modeling form, thermal treatment, construction, etc.) with the CAP to the appropriate DHEC program areas. All submitted applications must comply with the requirements of the respective permitting program. Any required permit changes or corrections will be submitted within 15 days of notification by DHEC.

4. **INITIAL MONITORING REPORT:** Prior to CAP preparation, the Site Rehabilitation Contractor must submit an Initial Monitoring Report to DHEC documenting CoC concentrations, FPP thicknesses, and potentiometric conditions in all wells and sampling points listed in the Appendix. The report will be due **within 45 days** after receipt of the UST QAPP Contractor Addendum or Site-Specific Work Plan approval from DHEC. The report should include color photographs with date stamp of the facility/site and surrounding properties to provide documentation of the condition of the facility/site prior to implementation of any corrective action activities. Copies of the Initial Monitoring Report must be distributed in accordance with Section II.A.8.

Naturally occurring conditions may cause FPP thicknesses and/or CoC concentrations to increase or decrease. For the purpose of this solicitation, the total FPP thickness or CoC concentration for all wells and sampling points listed in the Appendix may reasonably increase up to 150% or decrease as much as 50%. If the total FPP thickness or CoC concentration in the wells and sampling points listed in the Appendix increases more than 150% percent based on initial gauging and sampling, or if measurable (>.01') FPP that has not been previously documented in any report is detected during the initial sampling event, the Site Rehabilitation Contractor may request in writing that financial approval be cancelled. **If any of these conditions are identified during initial sampling, the Site Rehabilitation Contractor will notify DHEC within 2 days of identification and will submit written documentation within 5 days of notification requesting a decision from DHEC on continuance or discontinuance of the Active Corrective Action. If total COC or FP increase more than 150% or decrease more than 50% during the initial sampling event, sampling and analytical results of the Initial Monitoring Report will be verified by DHEC. The verification sampling event will be conducted by DHEC or DHEC's agent. Financial approval will be cancelled and the Site Rehabilitation Contractor will be reimbursed based on the following rate schedule if DHEC discontinues this Active Corrective Action:**

Table 4.1 – Reimbursement Rate Schedule

Subcontract Costs*	Invoice + 12%
Personnel mobilization	\$423.00
Groundwater sample collection- purge	\$60.00 per well
Groundwater sample collection- no purge	\$28.00 per well
Groundwater sample collection- low flow	\$91.00 per well
Field blank	\$24.60
Gauging FPP	\$7.00 per well
Contaminated water disposal	\$0.56 per gallon
FPP disposal	\$0.50 per gallon
UST QAPP Contractor Addendum preparation	\$250.00
Site-Specific Work Plan preparation	\$150.00

\* Includes laboratory, drilling, electrical, etc.

If the total FPP thickness or CoC concentration in the wells and sampling points listed in the Appendix decreases more than 50% based on initial gauging and sampling, DHEC may cancel financial approval. The Site Rehabilitation Contractor will be notified of the cancellation by certified letter and must submit an invoice for the appropriate items listed in the rate schedule

within 20 days from receipt of the letter. If financial approval is cancelled prior to the receipt of the Notice to Proceed for CAP preparation due to any of the conditions described in this Section, final payment will be made for work actually conducted in accordance with table 4.1 above.

5. **CORRECTIVE ACTION PLAN IMPLEMENTATION:** After the CAP, UST QAPP Contractor Addendum or Site-Specific Work Plan, and all permit applications are reviewed and approved in accordance with the UST QAPP and the Contractor's ACQAP, and R.61-92, Section 280.66, the DHEC UST Management Division will issue a Notice to Proceed with CAP implementation. CAP Implementation must not proceed until a written Notice to Proceed is received from the UST Management Division. The Site Rehabilitation Contractor will implement the CAP within 30 days of receipt of the Notice to Proceed and any required permit to construct. If the CAP is not implemented in 30 days, a penalty of \$100 per day will be assessed for each calendar day late unless the Site Rehabilitation Contractor obtains written approval from DHEC regarding a change in the implementation schedule. Any assessed penalty amounts will be deducted from the initial payment. If any problem with CAP implementation occurs, the Site Rehabilitation Contractor will notify DHEC within 24 hours of problem identification and will submit written documentation within 5 days of notification. Disruption to the normal business at the site will be kept to a minimum. Any modification, relocation, disturbance, or destruction of physical structures or features as a result of CAP implementation must be approved in writing by the affected property owner prior to CAP implementation. Upon completion of any required construction, DHEC will inspect the corrective action system and issue a permit to operate. The Site Rehabilitation Contractor will, at all times, keep the site free from waste materials and rubbish related to corrective action and maintain the site in a neat and workmanlike condition for the duration of the corrective action. All contaminated soil and construction debris, contaminated water, and FPP generated on-site will be removed from the site promptly. Manifests documenting the proper disposal of contaminated soil and construction debris, contaminated water, and FPP must be included in the appropriate report. The Site Rehabilitation Contractor will repair and/or restore the site/facility to the condition that existed prior to CAP implementation and as documented by the photographs included in the Initial Monitoring Report in accordance with III.B.4. Any deviation in returning the site/facility to the condition that existed prior to CAP implementation must be documented in writing by the Site Rehabilitation Contractor and signed by the Owner/Operator and property owner. **If the CAP has been implemented and physical treatment activities performed, the Owner/Operator will be required to complete the Active Corrective Action unless conditions outlined in Section II.A.11 are encountered.**

Implementation of the CAP is not authorized until the Site Rehabilitation Contractor receives a Notice to Proceed from DHEC. If unauthorized implementation occurs, DHEC will not reimburse related costs incurred by the Site Rehabilitation Contractor from the SUPERB Account, and the Corrective Action Cost will be reduced by the amount of the incurred costs. If DHEC agrees with early implementation to better protect human health in an emergency and provides approval in writing, early implementation without any reduction to the Corrective Action Cost will be authorized.

A CAP Implementation Report will be due 60 days from receipt of the Notice to Proceed from DHEC and shall include a description of work sufficient to document CAP implementation activities and the associated dates of work.

6. **PROPERTY ACCESS:** The Site Rehabilitation Contractor will secure access to the site and

**SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL**

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adjacent properties to gauge and sample wells and sampling points, and to install any corrective action components, as required. The Site Rehabilitation Contractor will be responsible for corrective action components installed on adjacent properties. Costs to repair or replace components of the corrective action system damaged due to the actions of adjacent property owners cannot be paid by the SUPERB Account.

7. **START-UP:** The Site Rehabilitation Contractor will initiate corrective action within 15 days of receipt of a permit to operate, if required. Corrective action as defined in the CAP will begin upon start-up. **NOTE: The application of corrective action technologies or natural fluctuations in the water table can mobilize FPP and cause possible appearance of FPP and/or elevated CoC concentrations in non-SSTL wells and sampling points.**
8. **REPORTING:** The Site Rehabilitation Contractor must complete and submit a CAP Implementation Report within 60 days of receipt of the Notice to Proceed. The Site Rehabilitation Contractor must also complete and submit a Corrective Action System Evaluation (CASE) report on a semi-annual schedule. Sampling of all water supply wells and surface water locations listed in the Appendix must be conducted and reported to DHEC on a semi-annual schedule. The CAP Implementation Report and CASE reports will be distributed in accordance with Section II.A.8. The first CASE report is due within 120 days of the CAP Implementation. **CASE reports must be submitted regardless of the status of corrective action activities.**

All wells and sampling points listed in the Appendix will be sampled on a semi-annual schedule (see Section III.B.9 for sampling details) following submittal of the CAP Implementation Report. All water supply wells and surface water locations listed in the Appendix will be sampled on a semi-annual schedule.

CASE reports must include, at a minimum, all items stipulated in the Documents and Records section and Active Site Rehabilitation Procedures section of the UST QAPP and must include a summary of all Corrective Action activities conducted to date and during the last reporting period. CASE reports must also include any additional data required by permits (e.g., air analyses, wastewater effluent analyses, etc.). The Site Rehabilitation Contractor will be provided with the proper report forms and reporting format prior to CAP Implementation. DHEC will notify the Site Rehabilitation Contractor regarding any revisions to the forms or format 60 days prior to the due date for the next CASE report.

9. **SAMPLING:** The Site Rehabilitation Contractor must collect water samples from all wells and sampling points listed in the Appendix on a semi-annual schedule. Samples must be collected from all water supply wells and surface water locations listed in the Appendix on a semi-annual schedule. **Do not sample wells and sampling points containing measurable (>0.01') FPP.** If measurable FPP is present, the thickness of product and depth to groundwater must be recorded to the nearest 0.01'. The sampling will be conducted in accordance with applicable portions of the UST QAPP and the Contractor's ACQAP. Additional samples (air, groundwater, effluent, soil) required by permits must be collected in accordance with established Quality Assurance/Quality Control protocol and submitted to an SC-certified laboratory for analysis. The samples will be analyzed for parameters stipulated in the permits. Sampling and analytical data for each sample (e.g., field sampling logs, chain of custody forms, certificates of analysis, lab certification number) will be included in the CASE report.



10. **DISPOSAL:** The Site Rehabilitation Contractor must properly dispose of all contaminated water, contaminated soil, and FPP generated during corrective action. The Owner/Operator of the UST facility will be considered the generator. Treatment and disposal must be conducted at a DHEC-approved facility, and must be documented in the CASE reports.
11. **QUALITY ASSURANCE & VERIFICATION:** **If the Site Rehabilitation Contractor anticipates that a payment milestone has been achieved, the Site Rehabilitation Contractor must conduct a gauging or sampling event and submit the finalized gauging data or lab report electronically and via mail to DHEC for review. DHEC will then schedule a gauging event or issue a directive for verification sampling and schedule an On-Site Field Audit. DHEC must be allowed at least 15 calendar days in order to schedule a time to conduct an On-Site Field Audit or verification of the gauging or sampling event. Furthermore, the Site Rehabilitation Contractor will be allowed one verification attempt during each reporting period for the FPP removal, 60%, 90%, and 100% payment milestones.**

Once gauging data indicates that FPP has been removed, the Site Rehabilitation Contractor must provide DHEC with documentation of the gauging event to show that the FPP removal payment milestone has been achieved. DHEC will then conduct a gauging event as soon as possible to verify achievement of the FPP removal payment milestone. The Site Rehabilitation Contractor will be notified of the date and time DHEC plans to conduct the verification gauging event.

DHEC will require the Site Rehabilitation Contractor to submit a finalized lab report documenting the achievement of the 60% and 90% payment milestones. The Site Rehabilitation Contractor will then be required to conduct verification sampling to verify achievement of the first (60%) and second (90%) interim CoC concentration reduction payment milestones. During the 60% and 90% verification sampling events DHEC must conduct an On-Site Field Audit to ensure adherence with the UST QAPP.

Once sampling data indicate 100% CoC concentration reduction, the Site Rehabilitation Contractor must completely suspend corrective action for 30 days, provide notification to DHEC with the submission, electronically and via mail, of a finalized lab report to DHEC documenting the sampling results. After 30 days, the Site Rehabilitation Contractor will sample all wells and sampling points listed in the Appendix again to verify that the final (100%) CoC concentration reduction payment milestone has been achieved and maintained, and submit a finalized lab report to DHEC documenting the results of this 30 day post system shut off sampling event. If the payment milestone is achieved and maintained, the date of the 30-day post system shut off sampling event will be considered the start of the two-quarter, post-corrective action verification period. The Site Rehabilitation Contractor will conduct quarterly sampling of all wells and sampling points listed in the Appendix and all verification wells for two quarters. All sampling, analytical methods and reporting limits should be in accordance with Section III.B.9, the Site Rehabilitation Contractor's ACQAP, and the UST QAPP.

The 100% CoC reduction payment milestone will require verification sampling to be conducted by DHEC's Agent at the end of the two-quarter, post-corrective action verification period to confirm that the 100% payment milestone has been maintained. In addition to the verification samples, DHEC may provide up to three standards or prepared blanks for the Site Rehabilitation Contractor's laboratory to analyze. Analytical data sets from the Site Rehabilitation Contractor's laboratory and DHEC's laboratory will be compared. In the event of substantial variance (more



than 15%) between the sets, a second verification sampling event will be conducted with the Site Rehabilitation Contractor. If the variance persists, all data sets and associated quality assurance/quality control data will be provided to Laboratory Certification to determine the cause of the variance. The Director of the UST Management Division will solicit input from Laboratory Certification, the UST Section Manager, the UST Project Manager, and the Site Rehabilitation Contractor, and render a final decision as to which data set will be used for verification. The Site Rehabilitation Contractor will be provided a written record of the decision.

If sampling results show that the final (100%) CoC concentration reduction payment milestone has not been maintained, and/or CoC concentrations exceed SSTLs in any verification well, corrective action must be resumed. DHEC may require the Site Rehabilitation Contractor to propose a revised corrective action strategy and timetable to achieve and maintain the payment milestone. The strategy may require modification of the existing corrective action system. The post-corrective action period will be suspended and corrective action will continue until the final (100%) CoC concentration reduction payment milestone is again achieved. The Site Rehabilitation Contractor will again suspend corrective action and sample all wells and sampling points after 30 days. If the payment milestone is achieved and maintained, a new post-corrective action verification period will begin. The aforementioned cycle of activity must be repeated until CoC concentrations remain at or below SSTLs in all wells and sampling points listed in the Appendix and in all verification wells for 2 consecutive quarters.

DHEC may require installation of EIGHT verification well(s) during the post-corrective action verification period at designated locations and depths. Costs for the verification wells will be considered part of the Corrective Action Cost. SSTLs for the verification wells will be provided by DHEC.

12. **DEMOBILIZATION:** The Site Rehabilitation Contractor will disassemble and remove the corrective action system and associated components installed as part of this Active Corrective Action including piping, injection or extraction wells, or utilities from the site within 60 days of a written Notice to Proceed received from the UST Management Division confirming that the 100% CoC concentration reduction payment milestone has been achieved and maintained for 2 consecutive quarters as described in Section III.B.11. Abandonment will be in accordance with the South Carolina Well Standards and Regulations R. 61-71, the UST QAPP, and the Site Rehabilitation Contractor's ACQAP, and accepted industry standards for abandonment of trenches and piping/utility runs. Abandonment of any corrective action system, monitoring well, recovery well, remediation well, etc., may not proceed until a written Abandonment Directive is issued by the UST Management Division. Disruption to the UST Owner/Operator's or property owner's normal business will be kept to a minimum.
  
13. **SITE RESTORATION:** The Site Rehabilitation Contractor must remove or properly abandon all pre-existing assessment and corrective action components (piping, monitoring wells, injection and/or extraction wells, trenches, etc.) within 60 days of a written Notice to Proceed received from the UST Management Division that the 100% CoC reduction payment milestone has been achieved and maintained for 2 consecutive quarters as described in Section III.B.11. Abandonment will be in accordance with the South Carolina Well Standards and Regulations R. 61-71, the UST QAPP, and the Site Rehabilitation Contractor's ACQAP, and accepted industry standards for abandonment of trenches and piping/utility runs. Abandonment of any corrective action system, monitoring well, recovery well, remediation well, etc., may not proceed until a

written Abandonment Directive is issued by the UST Management Division. Disruption to the Owner/Operator's or property owner's business must be kept to a minimum. The Site Rehabilitation Contractor must provide DHEC with documentation of the abandonment and disposal of any remaining contaminated soil, contaminated groundwater, and FPP. **Unless otherwise directed by DHEC, the Site Rehabilitation Contractor will restore the site and adjacent properties to the condition that existed prior to assessment and corrective action (e.g., repaving, reseeding, etc.) as documented by the photographs included in the Initial Monitoring Report or other written documentation detailing a variance from the conditions documented by the photographs. Neither DHEC nor the SUPERB Account will be liable for any damages caused by the Site Rehabilitation Contractor. As required by Section IV.A.4c of the SUPERB Site Rehabilitation and Fund Access Regulations R.61-98, the Site Rehabilitation Contractor shall be required to indemnify the property owner, UST Owner/Operator and the State of South Carolina from and against all claims, damages, losses and expenses arising out of or resulting from activity conducted by the Site Rehabilitation Contractor, its agents, employees or subcontractors. Under no circumstances will payment for Site Restoration exceed 5% of the Corrective Action Cost.**

14. **COMPLETION NOTICE:** Written notice must be provided to DHEC at least 2 weeks prior to completion of site restoration. This will allow DHEC and the Site Rehabilitation Contractor time to jointly inspect the site and adjacent properties, and compile a list of tasks to be finished. Task items may include, but are not limited to, well abandonment, pavement repair, debris removal, etc. **Site restoration will be complete once all the tasks are finished, the site passes a final inspection by DHEC, and DHEC issues written notice that the corrective action is complete.**

IV. FINANCIAL APPROVAL FORM

A. ACCEPTANCE and DELIVERY STATEMENT

In compliance with the solicitation and subject to all conditions thereof, the UST Site Rehabilitation Contractor agrees, if selected by the UST Owner/Operator within \_\_\_\_\_ days from the date of financial approval form submittal, to complete the corrective action as specified at the price set forth for the site as stated below. For the purpose of this submittal and possible acceptance of financial approval, I certify that this company understands the nature of the release(s) and the geologic conditions at the site as documented in the technical file and this solicitation. Any quantities listed in the corrective action method(s) below are estimates and changes to those quantities or to the listed method(s) will not affect the financial approval amount. Additionally, I certify that this company understands that acceptance is based on total cost to treat the area of concern.

\_\_\_\_\_  
UST Site Rehabilitation Contractor (Print)

\_\_\_\_\_  
UST Site Rehabilitation Contractor Certification #

\_\_\_\_\_  
Registered Professional Name (Print)

\_\_\_\_\_  
Registered Professional Signature (required)

P.G.  P.E.  (check appropriate box)

Professional Certification # \_\_\_\_\_

B. CORRECTIVE ACTION SOLICITATION RESPONSE

Please respond to the following questions for CIRCLE K 2720886, 4315 SAVANNAH HWY, RAVENEL, SC 29470, UST PERMIT #01589:

- 1. State and briefly describe the corrective action method(s) or technology(ies) that will be discussed in detail in the CAP to achieve all payment milestones in 5 years, should financial approval occur. Attach an additional sheet if necessary.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



# Appendix

### Distribution List for Plans and Reports

	Contact Name	Contact Address	Tax Map #
1.	(Responsible Party) CIRCLE K STORE INC, C/O MR BRENT PUZAK	1100 SITUS COURT STE 100 RALEIGH NC 27606	
2.	(Property Owner) GREGORIE LAND COMPANY LLC	PO BOX 2085 PHOENIX, AZ 85072	2450000149,2450000058
3.	BELLSOUTH TELECOMMUNICATIONS LLC	754 PEACHTREE STREET NE ROOM 3A95 ATLANTA, GA 30308	2440000126, 2440000184, 2440000182
4.	NANCY R HUDSON	509 CENTER ST, MT PLEASANT SC 29464-5006	2440000120
5.	ICHC INVESTMENTS LLC	117 N JEFFERSON ST #301, CHICAGO, IL 60661	2440000261
6.	EVELYN B. POSTELL (WSW15)	1613 WAYAH DR, CHARLESTON, SC 29414-5889	2440000106
7.	J&B DEVELOPMENT LLC	1027 BETHANY ST, N. CHARLESTON, SC 29405	2440000185
8.	ELIZABETH L POSTELL	4292 SAVANNAH HWY, RAVENEL, SC 29470	2440000104
9.	STEEN PROPERTIES LLC (WSW16)	4658 SAVANNAH HWY, ADAMS RUN, SC 29426	2450000056
10.	MCCOMBS ROAD LLC (WSW12)	6495 ETHEL POST OFFICE RD MEGGETT, SC 29449	2450000061
11.	GILBERT & LYNN MABRY (WSW13)	4318 MCCOMBS RD RAVENEL, SC 29470	2450000062
12.	FLORENCE BROWN	4276 RAILROAD AVE, RAVENEL, SC 29470	2440000118
13.	DON HESHER (JACOBS POINT HOMEOWNERS ASSOCIATION)	6070 JACOBS POINT BOULEVARD RAVENEL, SC 29470	
14.	OPAL BALDWIN	6385 SAVANNAH HIGHWAY RAVENEL, SC 29470	TOWN OF RAVENEL, MAYOR
15.	MARK BLOOMER	5962 HWY 165 STE 100, RAVENEL, SC 29470	TOWN OF RAVENEL
16.	PRISCILLA & WALKER BURBAGE	4358 WALLACE CREEK WAY RAVENEL, SC 29470	
17.	CAROL CARAWAY	5707 CONNERS ST, RAVENEL, SC 29470	
18.	HAROLD 'BUCK' DUKES	4500 ROSE DRIVE RAVENEL, SC 29470	RAVENEL TOWN COUNCIL
19.	NANCY & GEORGE FERACCO	6099 JACOBS POINT BOULEVARD RAVENEL, SC 29470	
20.	MARTIN FLETES	6057 JACOBS POINT BOULEVARD RAVENEL, SC 29470	
21.	PATRICK FRAZIER	6065 POSTELL DRIVE, RAVENEL, SC 29470	
22.	SCOTT INFINGER	5953 HWY 165, RAVENEL, SC 29470	
23.	JAMIE & MARGAUX KILGALLEN	6079 POSTELL DRIVE, RAVENEL, SC 29470	
24.	TOM MASI	6036 POSTELL DRIVE, RAVENEL, SC 29470	
25.	PRESTON & SUE MULLINAX	4355 WALLACE CREEK WAY RAVENEL, SC 29470	
26.	AMY MYLIN	6210 ROBINSON STREET, RAVENEL, SC 29470	
27.	NANETTE PICCIRILLO	6036 POSTELL DRIVE, RAVENEL, SC 29470	
28.	JOAN PRIOLEAU	5840 CABOOSE AVE, RAVENEL, SC 29470	
29.	NEAL VAN SEYOC	663 OLD JACKSONBORO RD RAVENEL, SC 29470	
30.	STEVE TUMBLESTON	6670 PEPPER GRASS TRAIL RAVENEL, SC 29470	RAVENEL TOWN COUNCIL
31.	TERRY WILKINSON	4354 WALLACE CREEK WAY RAVENEL, SC 29470	WALLACE CREEK WAY



CIRCLE K 2720886, UST Permit #01589  
Charleston County

32.	EDWARD T. WRIGHT	5860 CABOOSE AVENUE, HOLLYWOOD, SC 29470	
33.			
34.			

\*Information is subject to change due to sale or other exchange of property

### Adjacent Facilities

	Facility Name	Facility Address	UST Permit #
1.	H C EVANS EXXON	4389 SAVANNAH HWY, RAVENEL, SC, 29470	01521
2.	REYNOLDS 66	HWY 162 & McCOMBS RD, CHARLESTON, SC, 29407	01613
3.	PETER MILLERS	4213 SAVANNAH HWY, RAVENEL, SC, 29470	16779
4.			
5.			

### Analytical Parameters

Chemical of Concern	Analytical Method	Reporting Limit	Potable WSW Reporting Limit	Non Potable WSW & Surface Water Reporting Limit
Benzene	8260B	5 µg/L	0.5 µg/L	2 µg/L
Toluene	8260B	5 µg/L	0.5 µg/L	2 µg/L
Ethylbenzene	8260B	5 µg/L	0.5 µg/L	2 µg/L
Total Xylenes	8260B	10 µg/L	0.5 µg/L	6 µg/L
MTBE	8260B	5 µg/L	5 µg/L	5 µg/L
Naphthalene	8260B	5 µg/L	2 µg/L	2 µg/L
TBA	8260B-oxy	100 µg/L	100 µg/L	100 µg/L
TAA	8260B-oxy	100 µg/L	100 µg/L	100 µg/L
Ethanol	8260B-oxy	1000 µg/L	1000 µg/L	1000 µg/L
ETBE	8260B-oxy	100 µg/L	100 µg/L	100 µg/L

### Verification Wells

Ten verification well(s) may be installed during the post-corrective action verification period at locations designated by the UST Program. Costs for the well installation(s) are considered part of the approved Corrective Action Cost. The UST Program will calculate SSTLs for the verification well(s) and provide data to the contractor in writing. During the verification period, all wells must be sampled for the parameters listed in the Analytical Parameters Table as well as the following parameters:

Chemical of Concern	Analytical Method	Reporting Limit	Potable WSW Reporting Limit	Non Potable WSW & Surface Water Reporting Limit
Dissolved Oxygen	SM4500-O G	1000 µg/L		1000 µg/L
Ferrous Iron	SM3500-Fe D	10 µg/L		10 µg/L
Methane	Kerr Method	10000 µg/L		10000 µg/L
Nitrate	9210A or 9056A	100 µg/L		100 µg/L
Sulfate	9056A	1000 µg/L		1000 µg/L
1,2-DCA	8260B	5 µg/L	0.5 µg/L	2 µg/L
EDB	8011	0.05 µg/L	0.02 µg/L	0.02µg/L
TAME	8260B-oxy	10 µg/L	10 µg/L	10 µg/L
DIPE	8260B-oxy	10 µg/L	10 µg/L	10 µg/L

TABLE 1 : Free Product Thickness Groundwater Analytical Data (ug/L) collected July 10, 2019 August 13, 2019

CIRCLE K 2720886, UST Permit #01589  
 Charleston County

Monitoring Well ID	FPF Thickness (Feet)	Benzene	Toluene	Ethylbenzene	Total Xylenes	MtBE	Naphthalene	1,2 DCA	ETBA	DIPE	Ethanol	TBA	TAA	TAME	ETBE	TBF
01589_MW01		17700	40400	2290	11400	1850	<250	<250	<25000	<250	<50000	<25000	<25000	<2500	<2500	<12500
01589_MW02		10000	21600	1690	9250	559	236	<125	<12500	<125	<25000	<12500	16200	<1250	<1250	<6250
01589_MW03		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW04		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW05		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW06	0.09															
01589_MW07		9210	34100	2390	12700	<200	271	<200	<20000	<200	<40000	<20000	<20000	<2000	<2000	<10000
01589_MW08		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW09		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW10		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW11		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW12		410	12.7	46.5	24.5	9.8	9.1	<2.5	<250	<2.5	<500	<250	1370	<25	25.9	<125
01589_MW13		31.2	19.5	490	1630	<5.0	164	<5.0	<500	<5.0	<1000	<500	<500	<50	<50	<250
01589_MW14		<1.0	<1.0	<1.0	<1.0	<1.0	4.1	<1.0	<100	<1.0	<200	<100	<100	<10	<10	<50
01589_MW15		2840	7910	982	4850	<50	120	<50	<5000	<50	<10000	<5000	6950	<500	<500	<2500
01589_MW16		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW17		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW18		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW19		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW20		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW21		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW22		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW23		<1	<1	<1	<1	1.8	<1	<1	<100	1.3	<200	<100	<100	<10	<10	<50
01589_MW24		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW25		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW26		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW27		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW28		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50

\*CoC concentrations in µg/L. Concentrations may vary due to seasonal fluctuations in the groundwater.

\*\*Wells with FP, initial analytical values will be based upon results from the first sampling event where FP is removed.

**TABLE 1 : Free Product Thickness Groundwater Analytical Data (ug/L) collected July 10, 2019 August 13, 2019**  
 CIRCLE K 2720886, UST Permit #01589  
 Charleston County

Monitoring Well ID	FPP Thickness (Feet)	Benzene	Toluene	Ethylbenzene	Total Xylenes	MtBE	Naphthalene	1,2 DCA	ETBA	DIPE	Ethanol	TBA	TAA	TAME	ETBE	TBF
01589_MW29		2.2	<1	<1	<1	7.4	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW30		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW31		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW32		306	9.3	9.7	17.1	11.4	<2	<2	<200	<2	<400	<200	284	<20	<20	<100
01589_MW33	0.11															
01589_MW34		<1	<1	<1	<1	<1	<1	<1	<100	1.1	<200	<100	<100	<10	<10	<50
01589_MW35		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW36		14.5	102	113	223	<1	12.9	<1	<100	<1	<200	<100	148	<10	<10	<50
01589_MW37		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_MW38		73.6	<1	<1	2.1	11.2	<1	<1	<100	<1	<200	<100	138	<10	<10	<50
01589_DMW01		7.1	1.1	1.1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_DMW02		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_DMW03		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_DMW04		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_DMW05		<1	<1	<1	<1	<1	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_RW01		12300	27900	1700	11800	1400	283	<200	<20000	<200	<40000	<20000	<20000	<2000	<2000	<100000
01589_RW02	0.18															
01589_RW03	1.56															
01589_RW04		3.3	<1	<1	<1	1.4	<1	<1	<100	<1	<200	<100	<100	<10	<10	<50
01589_RW05	1.64															
01589_RW06	2.00															
01589_RW07	0.45															
01589_RW08	0.30															
01589_RW09	0.86															
01589_RW10	1.37															
01589_RW11	1.50															
01589_RW12		4360	6410	556	5080	236	170	<50	<5000	<50	<10000	<5000	5030	<500	<500	<2500

\*CoC concentrations in µg/L. Concentrations may vary due to seasonal fluctuations in the groundwater.

\*\*Wells with FP, initial analytical values will be based upon results from the first sampling event where FP is removed.

**TABLE 1 : Free Product Thickness Groundwater Analytical Data (ug/L) collected July 10, 2019 August 13, 2019**

CIRCLE K 2720886, UST Permit #01589  
Charleston County

Monitoring Well ID	FPP Thickness (feet)	Benzene	Toluene	Ethylbenzene	Total Xylenes	MtBE	Naphthalene	1,2 DCA	ETBA	DIPE	Ethanol	TBA	TAA	TAME	ETBE	TBF
01589_WSW12		<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<100	<1.0	<200	<100	<100	<10	<10	<50
01589_WSW13		<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<100	<1.0	<200	<100	<100	<10	<10	<50
01589_WSW15*a		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0
01589_WSW16		<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<100	<1.0	<200	<100	<100	<10	<10	<50
01589_SW01		DRY		DRY		DRY		DRY		DRY		DRY		DRY		DRY
01589_SW02		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<200	<100	<100	<10	<1.0	<50
01589_SW03		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<200	<100	<100	<10	<1.0	<50
01589_SW04		DRY		DRY		DRY		DRY		DRY		DRY		DRY		DRY
01589_SW05		DRY		DRY		DRY		DRY		DRY		DRY		DRY		DRY
01589_SW06		<1.0	2	4.3	32.6	<1.0	1.8	<1.0	<100	<1.0	<200	<100	<100	<10	<1.0	<50
01589_SW07		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<200	<100	<100	<10	<1.0	<50
01589_SW08		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<200	<100	<100	<10	<1.0	<50
01589_SW09		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<200	<100	<100	<10	<1.0	<50

\*a 01589\_WSW15 Permission denied 07/2019, results reported from 08/2018

\*CoC concentrations in µg/L. Concentrations may vary due to seasonal fluctuations in the groundwater.

\*\*Wells with FP, initial analytical values will be based upon results from the first sampling event where FP is removed.

TABLE 2 : Groundwater Site-Specific Target Levels (SSTLs)

CIRCLE K 2720886, UST Permit #01589  
 Charleston County

Monitoring Well ID	Benzene	Toluene	Ethylbenzene	Total Xylenes	MtBE	Naphthalene	TBA	TAA	ETHANOL	ETBE
01589_MW01	6	1324	869	11400	51	28	1526	295	21596	57
01589_MW02	5	1144	775	9250	45	26	1453	264	14610	51
01589_MW03	5	5	5	10	5	5	100	100	1000	100
01589_MW04	5	5	5	10	5	5	100	100	1000	100
01589_MW05	5	5	5	10	5	5	100	100	1000	100
01589_MW06	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
01589_MW07	21	8500	2390	12700	200	67	3356	1247	40000	222
01589_MW08	5	5	5	10	5	5	100	100	1000	100
01589_MW09	5	5	5	10	5	5	100	100	1000	100
01589_MW10	5	5	5	10	5	5	100	100	1000	100
01589_MW11	5	5	5	10	5	5	100	100	1000	100
01589_MW12	7	13	47	25	10	9	250	382	1000	26
01589_MW13	7	20	490	1630	5	30	500	334	1000	100
01589_MW14	5	5	5	10	5	4	100	100	1000	100
01589_MW15	7	1534	870	4850	50	29	1758	382	10000	73
01589_MW16	5	5	5	10	5	5	100	100	1000	100
01589_MW17	5	5	5	10	5	5	100	100	1000	100
01589_MW18	5	5	5	10	5	5	100	100	1000	100
01589_MW19	5	5	5	10	5	5	100	100	1000	100
01589_MW20	5	5	5	10	5	5	100	100	1000	100
01589_MW21	5	5	5	10	5	5	100	100	1000	100
01589_MW22	5	5	5	10	5	5	100	100	1000	100
01589_MW23	5	5	5	10	2	5	100	100	1000	100
01589_MW24	5	5	5	10	5	5	100	100	1000	100
01589_MW25	5	5	5	10	5	5	100	100	1000	100
01589_MW26	5	5	5	10	5	5	100	100	1000	100

*Italic : Laboratory analysis is less than calculated SSTL --> SSTL is set to laboratory analysis*

**Bold : Laboratory analysis is below reporting limit --> SSTL is set to reporting limit**

Underline : Calculated SSTL is greater than solubility limits --> SSTL is set to solubility limit



TABLE 2 : Groundwater Site-Specific Target Levels (SSTLs)

CIRCLE K 2720886, UST Permit #01589  
 Charleston County

Monitoring Well ID	Benzene	Toluene	Ethylbenzene	Total Xylenes	MtBE	Naphthalene	TBA	TAA	ETHANOL	ETBE
01589_MW27	5	5	5	10	5	5	100	100	1000	100
01589_MW28	5	5	5	10	5	5	100	100	1000	100
01589_MW29	5	5	5	10	7	5	100	100	1000	100
01589_MW30	5	5	5	10	5	5	100	100	1000	100
01589_MW31	5	5	5	10	5	5	100	100	1000	100
01589_MW32	13	9	10	17	11	2	200	284	1000	100
01589_MW33	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
01589_MW34	5	5	5	10	5	5	100	100	1000	100
01589_MW35	5	5	5	10	5	5	100	100	1000	100
01589_MW36	6	102	113	223	5	13	100	148	1000	100
01589_MW37	5	5	5	10	5	5	100	100	1000	100
01589_MW38	74	5	5	2	11	5	100	138	1000	100
01589_DMW01	7	6	6	10	5	5	100	100	1000	100
01589_DMW02	5	5	5	10	5	5	100	100	1000	100
01589_DMW03	5	5	5	10	5	5	100	100	1000	100
01589_DMW04	5	5	5	10	5	5	100	100	1000	100
01589_DMW05	5	5	5	10	5	5	100	100	1000	100
01589_RW04	3	5	5	10	5	5	100	100	1000	100
01589_RW12	5	1144	556	5080	45	26	1453	264	10000	51
01589_WSW12	0.5	0.5	0.5	0.5	5	2	100	100	1000	100
01589_WSW13	0.5	0.5	0.5	0.5	5	2	100	100	1000	100
01589_WSW15	0.5	0.5	0.5	0.5	5	2	100	100	1000	100
01589_WSW16	0.5	0.5	0.5	0.5	5	2	100	100	1000	100
01589_SW01	2	2	2	6	5	2	100	100	1000	100
01589_SW02	2	2	2	6	5	2	100	100	1000	100
01589_SW03	2	2	2	6	5	2	100	100	1000	100

*Italic : Laboratory analysis is less than calculated SSTL --> SSTL is set to laboratory analysis*

**Bold : Laboratory analysis is below reporting limit --> SSTL is set to reporting limit**

Underline : Calculated SSTL is greater than solubility limits --> SSTL is set to solubility limit

TABLE 2 : Groundwater Site-Specific Target Levels (SSTLs)

CIRCLE K 2720886, UST Permit #01589  
 Charleston County

Monitoring Well ID	Benzene	Toluene	Ethylbenzene	Total Xylenes	MtBE	Naphthalene	TBA	TAA	ETHANOL	ETBE
01589_SW04	5	750	34	380	5	8	100	100	1000	100
01589_SW05	2	2	2	6	5	2	100	100	1000	100
01589_SW06	2	2	4	33	5	2	100	100	1000	100
01589_SW07	2	2	2	6	5	2	100	100	1000	100
01589_SW08	2	2	2	6	5	2	100	100	1000	100
01589_SW09	2	2	2	6	5	2	100	100	1000	100

*Italic : Laboratory analysis is less than calculated SSTL --> SSTL is set to laboratory analysis*

**Bold : Laboratory analysis is below reporting limit --> SSTL is set to reporting limit**

Underline : Calculated SSTL is greater than solubility limits --> SSTL is set to solubility limit

**TABLE 3 : Free Product Site-Specific Target Level (SSTL) Wells**

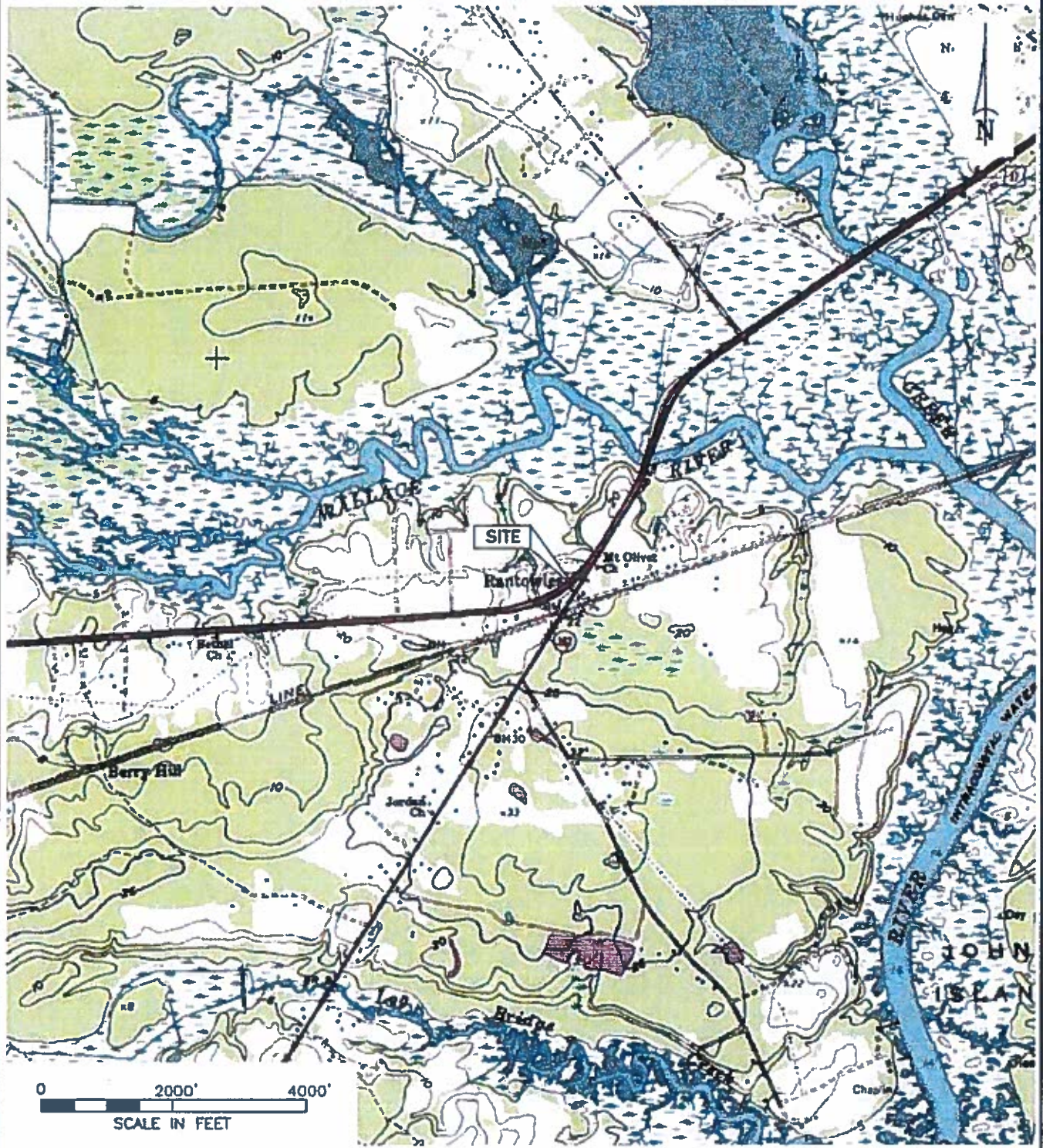
CIRCLE K 2720886, UST Permit #01589  
 Charleston County

**Free Product SSTLs**

Monitoring Well	Free Product Thickness (ft)
01589_MW06	0.01
01589_MW33	0.01
01589_RW01*	0.01
01589_RW02*	0.01
01589_RW03*	0.01
01589_RW05*	0.01
01589_RW06*	0.01
01589_RW07*	0.01
01589_RW08*	0.01
01589_RW09*	0.01
01589_RW10*	0.01
01589_RW11*	0.01

\*Designated Extraction Well





**TITLE** **FIGURE 1**  
 SITE TOPOGRAPHIC MAP  
 CIRCLE K #2720886  
 4315 SAVANNAH HIGHWAY  
 RAVENEL, SOUTH CAROLINA

UST PERMIT #01589




7499 Parklane Road, Suite 112  
 Columbia, South Carolina 29223  
 (803) 735-0003 FAX (803) 741-2444

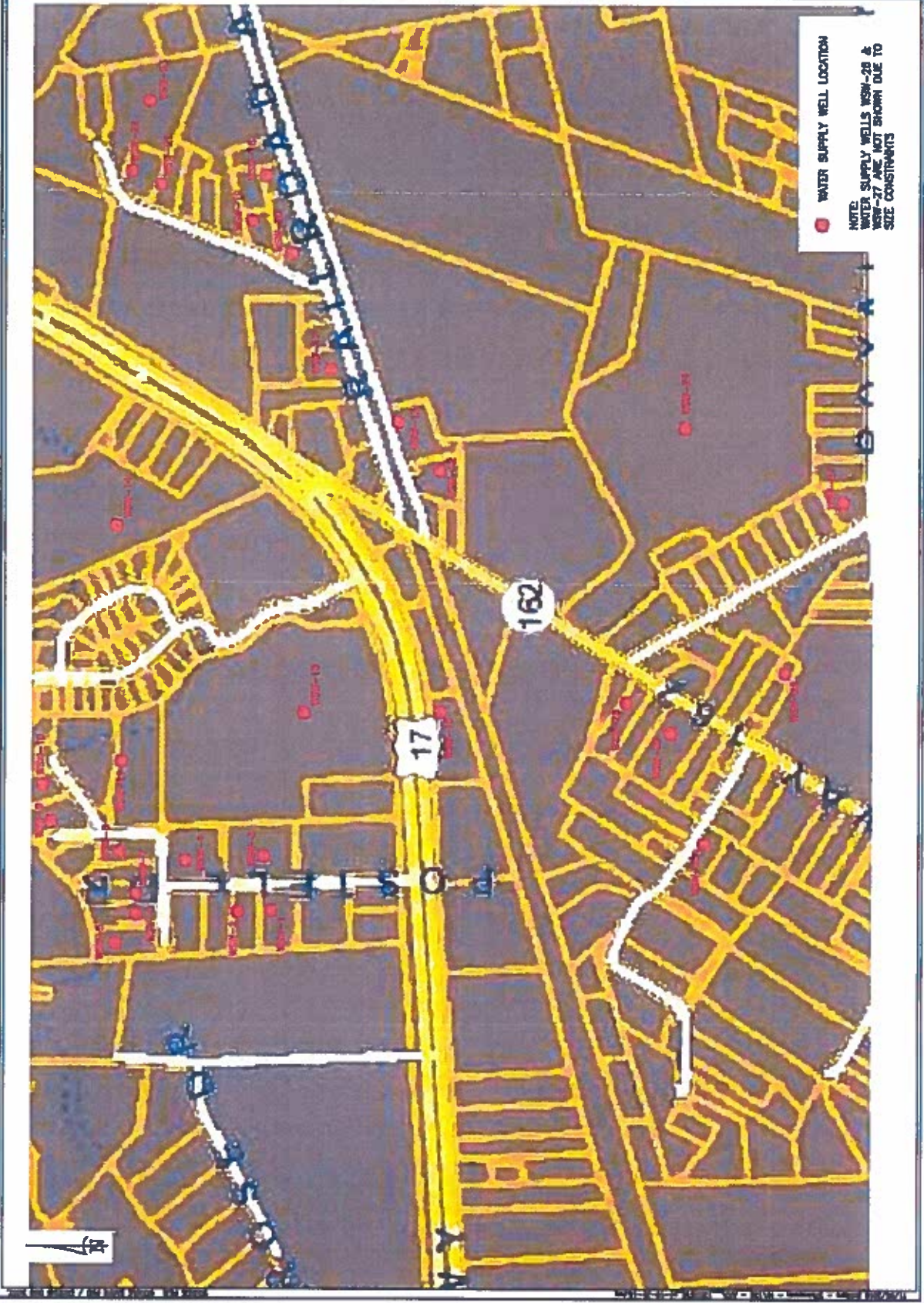
ENVIRONMENTAL • GEOTECHNICAL  
 BUILDING SCIENCES • MATERIALS TESTING

CAD FILE 1252215.dwg	PREP. BY WH	REV. BY	SCALE 1"=60'	DATE 07-26-2019	PROJECT NO. DHEC088605
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PROJECT NO DH-EC088603	DATE 10-31-18	SCALE 1"=50'	REV BY	FL	TRAC CODE	1252213.dwg
 7199 Pavilion Road, Suite 112 Columbia, South Carolina 29223 (803) 735-0033 FAX (803) 741-2944 ENGINEERING • GEOTECHNICAL SURVEYING • ENVIRONMENTAL			THIS FIGURE 23 WATER SUPPLY WELL LOCATION MAP CIRCLE K #2720888 4315 SAVANNAH HIGHWAY RAVENEL, SOUTH CAROLINA			





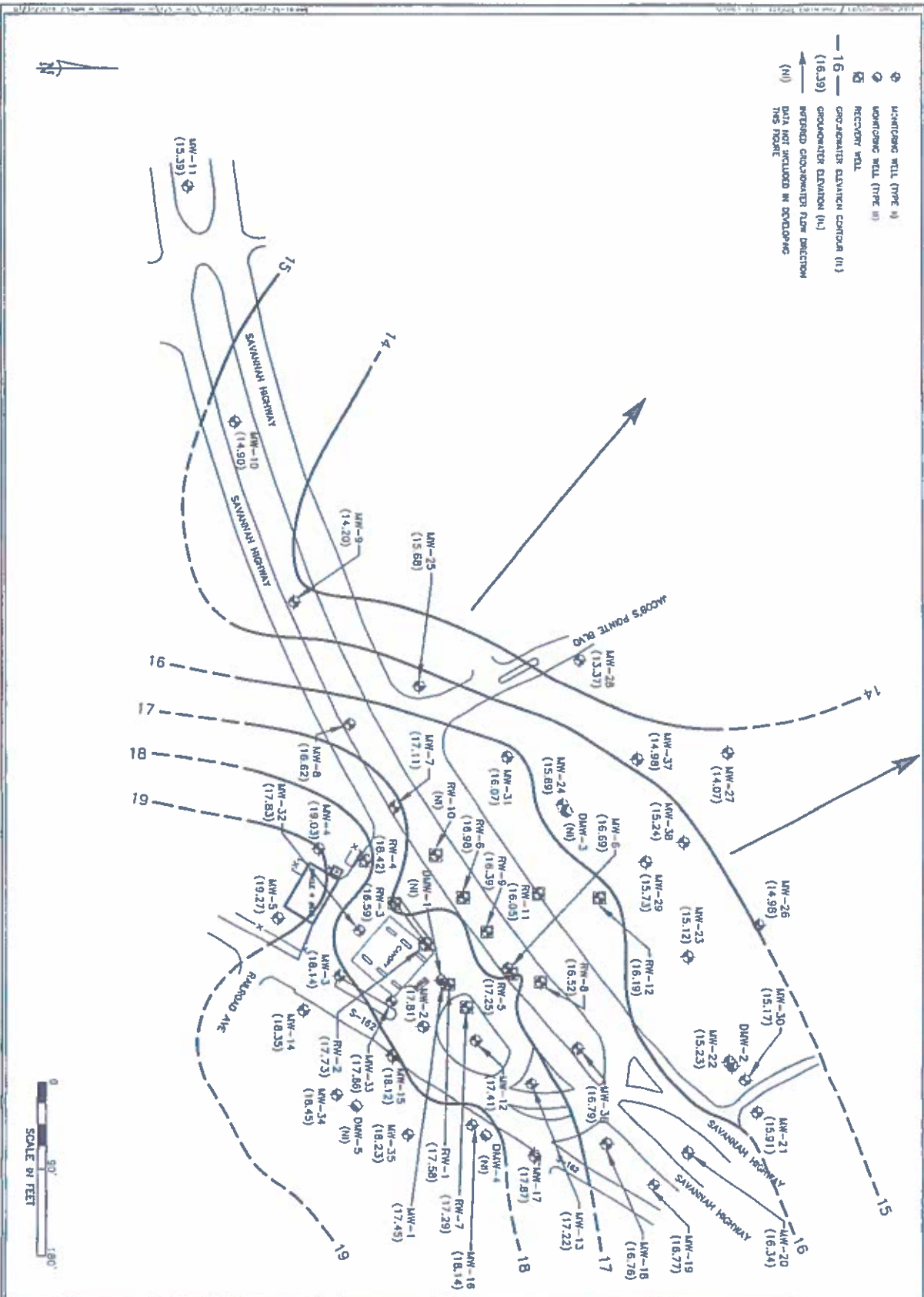
**Potable Water Well Ownership and Sample Identification**  
**Circle K 2720886**  
**4315 Savannah Highway**  
**Ravenel, Charleston County, South Carolina**  
**UST Permit #01589**

Well ID	Name	Address	Comments / Notes
WSW-1	Marsha Fariior	6033 Postell Ravenel, SC 29070	
WSW-2 WSW-2D	Ralph and Susan McKenzie	6047 Postell Ravenel, SC 29070	
WSW-3	Nannette Picirillo	6036 Postell Ravenel, SC 29470	
WSW-4	David and Rhiannon McPherson	6050 Postell Ravenel, SC 29470	
WSW-5	Harry Wilson	6057 Postell Ravenel, SC 29470	
WSW-6	David and Lori Bates	6061 Postell Ravenel, SC 29470	
WSW-7	Patrick and Harriet Frazier	6065 Postell Ravenel, SC 29470	
WSW-8	James and Margaret Kilgallen	6079 Postell Ravenel, SC 29470	
WSW-9	Merlin and Priscilla Burbage	4358 Wallace Creek Way Ravenel, SC 29470	
WSW-10	Terry and Vickie Wilkinson	4354 Wallace Creek Way Ravenel, SC 29470	
WSW-11	Preston and Sue Mullinax	4355 Wallace Creek Way Ravenel, SC 29470	
WSW-12	McCombs Road, LLC	4317 McCombs Rd Hollywood, SC 29449	
WSW-13	Gilbert and Lynn Maybry	4318 McCombs Rd Hollywood, SC 29449	
WSW-14	Elizabeth Postell	4292 Savannah Hwy Ravenel, SC 29470	
WSW-15	LaRoche	4360 Savannah Hwy Ravenel, SC 29470	Well not sampled, access permission request denied

**Potable Water Well Ownership and Sample Identification**  
**Circle K 2720886**  
**4315 Savannah Highway**  
**Ravenel, Charleston County, South Carolina**  
**UST Permit #01589**

<b>Well ID</b>	<b>Name</b>	<b>Address</b>	<b>Comments / Notes</b>
WSW-16	Steen	4367 Savannah Hwy Ravenel, SC 29470	
WSW-17	Florence Brown	4276 Railroad Ave Hollywood, SC 29470	
WSW-18	Frank Miller	4230 Railroad Ave Hollywood, SC 29470	
WSW-19	John Prioleau	5812 Caboose Ave Hollywood, SC 29470	
WSW-20	Harry Brown	4252 Railroad Ave Hollywood, SC 29470	Well not sampled, access permission request denied
WSW-21	Rosetta Geddes	5834 Caboose Ave Hollywood, SC 29470	Well not sampled, access permission request denied
WSW-22	Frank Prioleau	5840 Caboose Ave Hollywood, SC 29470	
WSW-23	Carrie Wright	5851 Caboose Ave Hollywood, SC 29470	
WSW-24	Lake Aire RV Park	4375 Highway 162 Hollywood, SC 29449	
WSW-25	John Miller Sr.	5627 Sands Rd Hollywood, SC 29449	
WSW-26	Loretta Doctor	4441 Highway 162 Hollywood, SC 29449	
WSW-27	Julia Ann Harvin	5710 Chaplins Landing Hollywood, SC 29449	Well not sampled, access permission request denied
WSW-28	Barbara Ferrara	4408 Highway 162 Hollywood, SC 29449	Well not sampled, access permission request denied
WSW-29	John Dunmyer	4422 Highway 162 Hollywood, SC 29449	Well not sampled, access permission request denied. The property is currently provided potable water from a municipal source





- ⊕ MONITORING WELL (TYPE M)
- ⊙ MONITORING WELL (TYPE B)
- ⊠ RECOVERY WELL
- 16 — GROUNDWATER ELEVATION CONTOUR (1)
- (16.39) GROUNDWATER ELEVATION (M)
- ↔ REFERRED GROUNDWATER FLOW DIRECTION
- (N) DATA NOT INCLUDED IN DEVELOPING THIS MODEL

NOTES:  
 1 GROUNDWATER ELEVATIONS WERE MEASURED ON 07/08/2019

TITLE **FIGURE 3A** LIST PERMIT #01589  
 GROUNDWATER ELEVATION CONTOUR MAP (SURFICIAL AQUIFER - UPPER EXTENT)  
 CIRCLE K #2720886  
 4315 SAVANNAH HIGHWAY  
 RAVENEL, SOUTH CAROLINA

7499 Parklane Road, Suite 112  
 Columbia, South Carolina 29223  
 (803) 735-0003 FAX (803) 761-3444

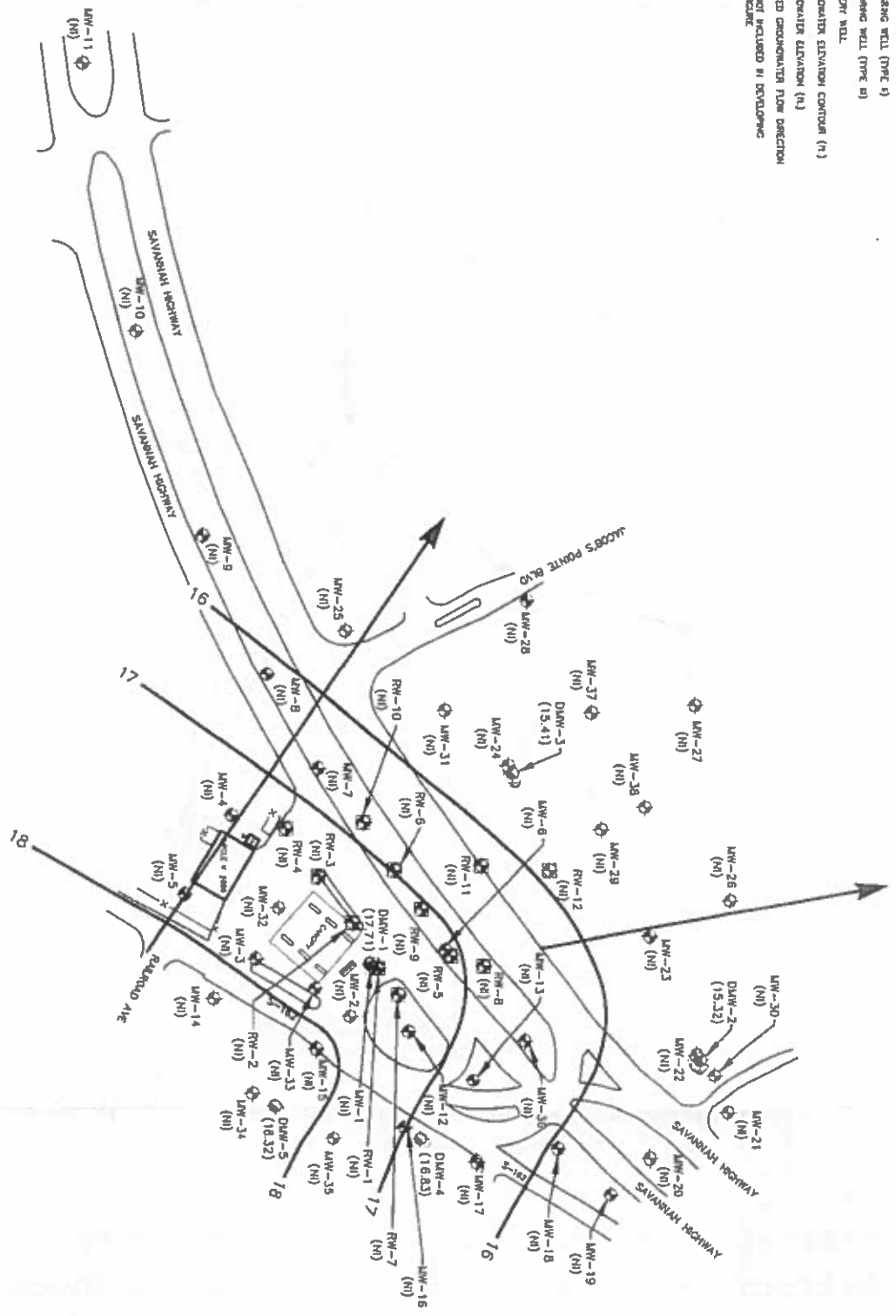
**ATC**  
 ENVIRONMENTAL • GEOTECHNICAL  
 BUILDING SCIENCES • MATERIALS TESTING

CAD FILE 1252215.dwg	TYPE CODE	PREP. BY WH	REV. BY	SCALE 1" = 90'	DATE 07-26-2019	PROJECT NO. DHEC088605
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6/10/15 07/2015



- ⊕ MONITORING WELL (TYPE 1)
- ⊕ MONITORING WELL (TYPE 2)
- ⊕ RECOVERY WELL
- 16 — GROUNDWATER ELEVATION CONTOUR (15.41)
- ↔ WATERED GROUNDWATER FLOW DIRECTION THIS FEATURE
- (NI) DATA NOT INCLUDED IN DEVELOPING THIS FEATURE



DATE 07/2019

NOTES:


**FILE FIGURE 3B** UST PERMIT #01589  
**GROUNDWATER ELEVATION CONTOUR MAP (SURFICIAL AQUIFER - LOWER EXTENT)**  
**CIRCLE K #2720886**  
**4315 SAVANNAH HIGHWAY**  
**RAVENEL, SOUTH CAROLINA**

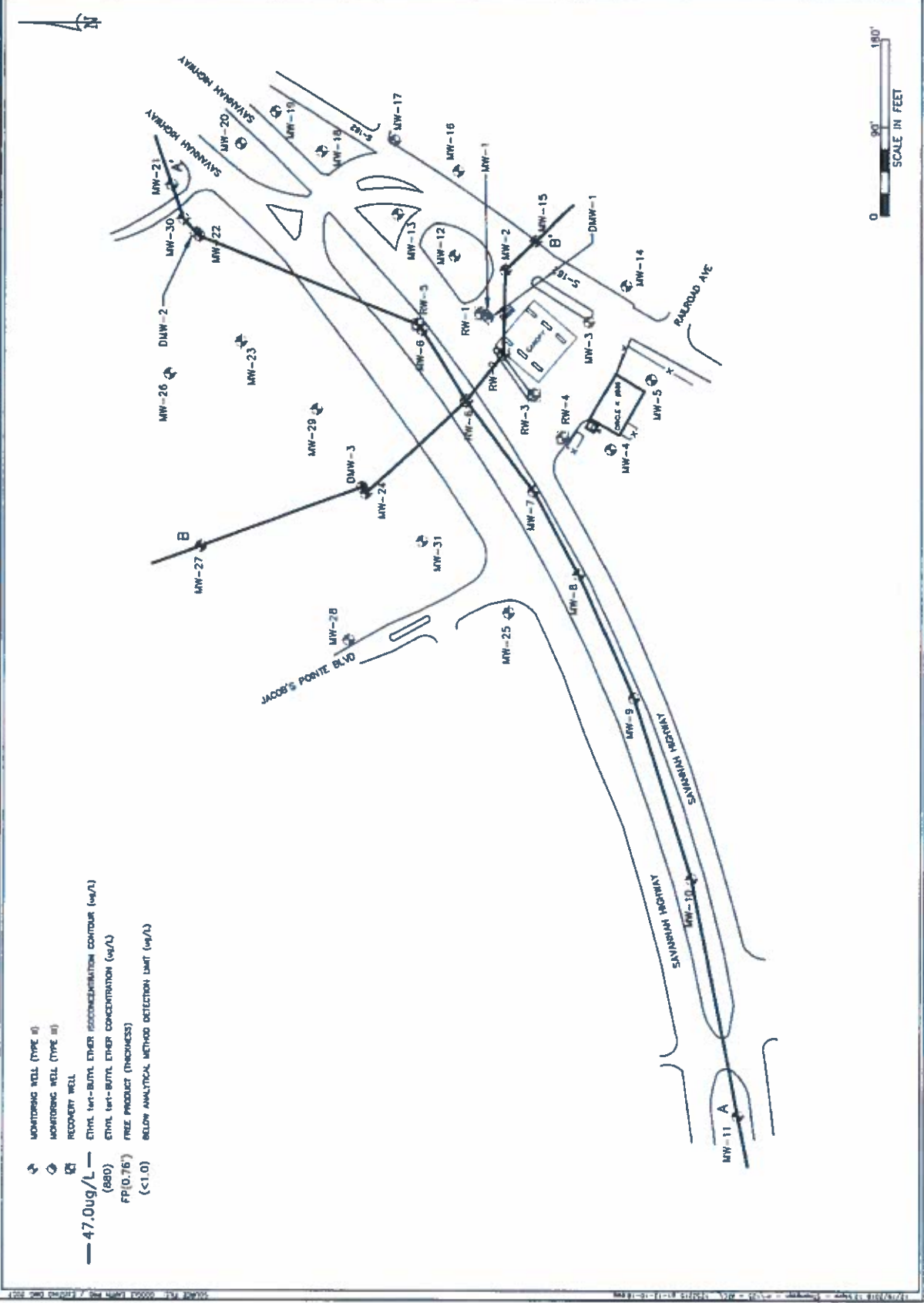
7499 Parklane Road, Suite 112  
 Columbia, South Carolina 29223  
 (803) 738-0800 FAX (803) 741-3444



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CAD FILE	TYPE CODE	PREP. BY	REV. BY	SCALE	DATE	PROJECT NO.
1252215.dwg		WH		1" = 90'	07-26-2019	DHEC088605

CAD FILE 1252215.dwg		TYPE CODE	REV BY	REV BY	SCALE	DATE	PROJECT NO.
7499 Parkway Road, Suite 112 Charlotte, South Carolina 28223 (800) 754-0003 FAX (803) 711-3444		4315 SAVANNAH HIGHWAY CIRCLE K #2720886 RAVENEL, SOUTH CAROLINA	1"=90'	12-10-18	DMEC088602		
ENVIRONMENTAL • GEOTECHNICAL BUILDING SCIENCES • MATERIALS TESTING							











**Table 1**  
**Groundwater Elevation Data**  
**Circle K 2720886**  
**4315 Savannah Highway**  
**Ravenel, Charleston County, South Carolina**  
**UST Permit #01589**

Monitoring Well Identification	Gauging Date	Top of Casing Elevation (feet)	Screened Interval (feet btoc)	Depth of Well (feet btoc)	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Product Thickness (feet)	Water Table Elevation* (feet)
01589 MW-1	11/22/2018	21.62	2.0 - 12.0	12.0	NM	4.82	NA	16.80
	2/26/2019				NM	4.30	NA	17.32
	3/11/2019				NM	4.53	NA	17.09
	4/25/2019				NM	5.24	NA	16.38
	7/8/2019				NM	4.17	NA	17.45
01589 MW-2	11/22/2018	21.59	2.0 - 12.0	12.0	NM	4.93	NA	16.66
	2/12/2019				NM	3.37	NA	18.22
	2/26/2019				NM	3.83	NA	17.76
	3/11/2019				NM	4.07	NA	17.52
	4/25/2019				NM	4.99	NA	16.60
	7/8/2019				NM	3.78	NA	17.81
01589 MW-3	11/22/2018	22.94	2.0 - 12.0	12.0	NM	5.47	NA	17.47
	2/12/2019				NM	3.81	NA	19.13
	2/26/2019				NM	4.29	NA	18.65
	3/11/2019				NM	4.55	NA	18.39
	4/25/2019				NM	5.31	NA	17.63
	7/8/2019				NM	4.80	NA	18.14
01589 MW-4	11/22/2018	22.80	2.0 - 12.0	12.0	NM	4.70	NA	18.10
	2/26/2019				NM	4.46	NA	18.34
	3/11/2019				NM	4.67	NA	18.13
	4/25/2019				NM	5.33	NA	17.47
	7/8/2019				NM	3.77	NA	19.03
01589 MW-5	11/22/2018	23.57	2.0 - 12.0	12.0	NM	5.19	NA	18.38
	2/26/2019				NM	4.46	NA	19.11
	3/11/2019				NM	4.74	NA	18.83
	4/25/2019				NM	5.41	NA	18.16
	7/8/2019				NM	4.30	NA	19.27
01589 MW-6	11/22/2018	19.33	2.0 - 12.0	12.0	2.30	3.06	0.76	16.83
	2/12/2019				2.22	2.16	0.06	17.21
	2/26/2019				2.77	2.96	0.19	16.51
	3/11/2019				NM	3.02	0	16.31
	4/25/2019				3.66	3.72	0.06	15.65
	7/8/2019				2.62	2.71	0.09	16.69

bloc = below top of casing

NM = no measurable product present

NA = not applicable

corrected water table elevation = TOC elev - DTW + (0.74)(product thickness)

\* = product thickness measured through use of a bailer

**Table 1**  
**Groundwater Elevation Data**  
**Circle K 2720886**  
**4315 Savannah Highway**  
**Ravenel, Charleston County, South Carolina**  
**UST Permit #01589**

Monitoring Well Identification	Gauging Date	Top of Casing Elevation (feet)	Screened Interval (feet btoc)	Depth of Well (feet btoc)	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Product Thickness (feet)	Water Table Elevation* (feet)
01589 MW-7	11/22/2018	19.55	2.0 - 12.0	12.0	NM	2.98	NA	16.57
	2/12/2019				NM	2.45	NA	17.10
	2/26/2019				NM	2.84	NA	16.71
	3/11/2019				NM	2.99	NA	16.56
	4/25/2019				NM	3.61	NA	15.94
	7/8/2019				NM	2.44	NA	17.11
01589 MW-8	11/22/2018	19.14	2.0 - 12.0	12.0	NM	3.05	NA	16.09
	2/26/2019				NM	2.80	NA	16.34
	3/11/2019				NM	2.93	NA	16.21
	4/25/2019				NM	3.64	NA	15.50
	7/8/2019				NM	2.52	NA	16.62
01589 MW-9	11/22/2018	16.50	2.0 - 12.0	12.0	NM	2.32	NA	14.18
	2/26/2019				NM	2.77	NA	13.73
	3/11/2019				NM	2.82	NA	13.68
	4/25/2019				NM	3.33	NA	13.17
	7/8/2019				NM	2.30	NA	14.20
01589 MW-10	11/22/2018	17.63	2.0 - 12.0	12.0	NM	3.09	NA	14.54
	2/26/2019				NM	3.04	NA	14.59
	3/11/2019				NM	3.04	NA	14.59
	4/25/2019				NM	3.61	NA	14.02
	7/8/2019				NM	2.73	NA	14.90
01589 MW-11	11/22/2018	18.13	2.0 - 12.0	12.0	NM	2.85	NA	15.28
	2/26/2019				NM	3.03	NA	15.10
	3/11/2019				NM	3.09	NA	15.04
	4/25/2019				NM	3.76	NA	14.37
	7/8/2019				NM	2.74	NA	15.39
01589 MW-12	11/22/2018	21.38	2.0 - 12.0	12.0	NM	4.76	NA	16.62
	2/12/2019				NM	3.70	NA	17.68
	2/26/2019				NM	4.15	NA	17.23
	3/11/2019				NM	4.36	NA	17.02
	4/25/2019				NM	5.28	NA	16.10
	7/8/2019				NM	3.97	NA	17.41

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NM = no measurable product present

NA = not applicable

corrected water table elevation = TOC elev - DTW + (0.74)(product thickness)

\* = product thickness measured through use of a bailer

**Table 1**  
**Groundwater Elevation Data**  
**Circle K 2720886**  
**4315 Savannah Highway**  
**Ravenel, Charleston County, South Carolina**  
**UST Permit #01589**

Monitoring Well Identification	Gauging Date	Top of Casing Elevation (feet)	Screened Interval (feet btoc)	Depth of Well (feet btoc)	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Product Thickness (feet)	Water Table Elevation* (feet)
01589 MW-13	11/22/2018	20.48	2.0 - 12.0	12.0	NM	4.07	NA	16.41
	2/12/2019				NM	3.11	NA	17.37
	2/26/2019				NM	3.54	NA	16.94
	3/11/2019				NM	3.71	NA	16.77
	4/25/2019				NM	4.70	NA	15.78
	7/8/2019				NM	3.26	NA	17.22
01589 MW-14	11/22/2018	23.45	2.0 - 12.0	12.0	NM	5.96	NA	17.49
	2/26/2019				NM	4.60	NA	18.85
	3/11/2019				NM	4.85	NA	18.60
	4/25/2019				NM	5.92	NA	17.53
	7/8/2019				NM	5.10	NA	18.35
01589 MW-15	11/22/2018	22.82	2.0 - 12.0	12.0	NM	5.48	NA	17.34
	2/26/2019				NM	4.41	NA	18.41
	3/11/2019				NM	4.89	NA	17.93
	4/25/2019				NM	5.95	NA	16.87
	7/8/2019				NM	4.70	NA	18.12
01589 MW-16	11/22/2018	21.18	2.0 - 12.0	12.0	NM	4.10	NA	17.08
	2/12/2019				NM	2.89	NA	18.29
	2/26/2019				NM	3.30	NA	17.88
	3/11/2019				NM	3.59	NA	17.59
	4/25/2019				NM	4.44	NA	16.74
	7/8/2019				NM	3.04	NA	18.14
01589 MW-17	11/22/2018	20.96	2.0 - 12.0	12.0	NM	4.04	NA	16.92
	2/26/2019				NM	3.40	NA	17.56
	3/11/2019				NM	3.68	NA	17.28
	4/25/2019				NM	4.75	NA	16.21
	7/8/2019				NM	3.09	NA	17.87
01589 MW-18	11/22/2018	20.05	2.0 - 12.0	12.0	NM	3.86	NA	16.19
	2/26/2019				NM	3.44	NA	16.61
	3/11/2019				NM	3.56	NA	16.49
	4/25/2019				NM	4.59	NA	15.46
	7/8/2019				NM	3.29	NA	16.76

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\* = product thickness measured through use of a bailer

**Table 1**  
**Groundwater Elevation Data**  
**Circle K 2720886**  
**4315 Savannah Highway**  
**Ravenel, Charleston County, South Carolina**  
**UST Permit #01589**

Monitoring Well Identification	Gauging Date	Top of Casing Elevation (feet)	Screened Interval (feet btoc)	Depth of Well (feet btoc)	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Product Thickness (feet)	Water Table Elevation* (feet)
01589 MW-19	11/22/2018	19.82	2.0 - 12.0	12.0	NM	3.71	NA	16.11
	2/26/2019				NM	2.74	NA	17.08
	3/11/2019				NM	2.70	NA	17.12
	4/25/2019				NM	4.71	NA	15.11
	7/8/2019				NM	3.05	NA	16.77
01589 MW-20	11/22/2018	18.53	2.0 - 12.0	12.0	NM	2.71	NA	15.82
	2/26/2019				NM	2.60	NA	15.93
	3/11/2019				NM	2.76	NA	15.77
	4/25/2019				NM	3.74	NA	14.79
	7/8/2019				NM	2.19	NA	16.34
01589 MW-21	11/22/2018	16.16	2.0 - 12.0	12.0	NM	1.34	NA	14.82
	2/26/2019				NM	0.00	NA	16.16
	3/11/2019				NM	0.99	NA	15.17
	4/25/2019				NM	1.24	NA	14.92
	7/8/2019				NM	0.25	NA	15.91
01589 MW-22	11/22/2018	18.79	2.0 - 12.0	12.0	NM	3.96	NA	14.83
	2/26/2019				NM	3.97	NA	14.82
	3/11/2019				NM	4.10	NA	14.69
	4/25/2019				NM	5.03	NA	13.76
	7/8/2019				NM	3.56	NA	15.23
01589 MW-23	11/22/2018	22.36	5.0 - 15.0	15.0	NM	7.61	NA	14.75
	2/26/2019				NM	7.33	NA	15.03
	3/11/2019				NM	7.49	NA	14.87
	4/25/2019				NM	8.50	NA	13.86
	7/8/2019				NM	7.24	NA	15.12
01589 MW-24	11/22/2018	22.50	5.0 - 15.0	15.0	NM	6.96	NA	15.54
	2/12/2019				NM	6.46	NA	16.04
	2/26/2019				NM	6.81	NA	15.69
	3/11/2019				NM	6.99	NA	15.51
	4/25/2019				NM	7.97	NA	14.53
	7/8/2019				NM	6.61	NA	15.89
01589 MW-25	11/22/2018	16.46	2.0 - 12.0	12.0	NM	0.22	NA	16.24
	2/26/2019				NM	1.37	NA	15.09
	3/11/2019				NM	1.24	NA	15.22
	4/25/2019				NM	1.90	NA	14.56
	7/8/2019				NM	0.78	NA	15.68

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NA = not applicable

corrected water table elevation = TOC elev - DTW + (0.74)(product thickness)

\* = product thickness measured through use of a bailer



**Table 1**  
**Groundwater Elevation Data**  
**Circle K 2720886**  
**4315 Savannah Highway**  
**Ravenel, Charleston County, South Carolina**  
**UST Permit #01589**

Monitoring Well Identification	Gauging Date	Top of Casing Elevation (feet)	Screened Interval (feet btoc)	Depth of Well (feet btoc)	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Product Thickness (feet)	Water Table Elevation* (feet)
01589 MW-26	11/22/2018	21.36	5.0 - 15.0	15.0	NM	6.96	NA	14.40
	2/26/2019				NM	6.96	NA	14.40
	3/11/2019				NM	7.15	NA	14.21
	4/25/2019				NM	8.37	NA	12.99
	7/8/2019				NM	6.38	NA	14.98
01589 MW-27	11/22/2018	20.77	5.0 - 15.0	15.0	NM	6.97	NA	13.80
	2/26/2019				NM	7.31	NA	13.46
	3/11/2019				NM	7.44	NA	13.33
	4/25/2019				NM	8.31	NA	12.46
	7/8/2019				NM	6.70	NA	14.07
01589 MW-28	11/22/2018	18.18	2.0 - 12.0	12.0	NM	5.02	NA	13.16
	2/26/2019				NM	4.93	NA	13.25
	3/11/2019				NM	5.01	NA	13.17
	4/25/2019				NM	5.69	NA	12.49
	7/8/2019				NM	4.81	NA	13.37
01589 MW-29	11/22/2018	22.35	5.0 - 15.0	15.0	NM	7.01	NA	15.34
	2/26/2019				NM	6.68	NA	15.67
	3/11/2019				NM	6.84	NA	15.51
	4/25/2019				NM	4.93	NA	17.42
	7/8/2019				NM	6.62	NA	15.73
01589 MW-30	11/22/2018	18.06	2.0 - 12.0	12.0	NM	3.27	NA	14.79
	2/26/2019				NM	3.30	NA	14.76
	3/11/2019				NM	3.44	NA	14.62
	4/25/2019				NM	4.38	NA	13.68
	7/8/2019				NM	2.89	NA	15.17
01589 MW-31	11/22/2018	23.28	2.0 - 12.0	12.0	NM	7.64	NA	15.64
	2/26/2019				NM	7.58	NA	15.70
	3/11/2019				NM	7.69	NA	15.59
	4/25/2019				NM	8.55	NA	14.73
	7/8/2019				NM	7.21	NA	16.07
01589 MW-32	2/26/2019	22.80	3.0-13.0	13.0	NM	4.64	NA	18.16
	3/11/2019				NM	4.97	NA	17.83
	4/25/2019				NM	5.59	NA	17.21
	7/8/2019				NM	4.97	NA	17.83

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NM = no measurable product present

NA = not applicable

corrected water table elevation = TOC elev - DTW + (0.74)(product thickness)

\* = product thickness measured through use of a bailer

**Table 1**  
**Groundwater Elevation Data**  
**Circle K 2720886**  
**4315 Savannah Highway**  
**Ravenel, Charleston County, South Carolina**  
**UST Permit #01589**

Monitoring Well Identification	Gauging Date	Top of Casing Elevation (feet)	Screened Interval (feet btoc)	Depth of Well (feet btoc)	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Product Thickness (feet)	Water Table Elevation* (feet)
01589 MW-33	2/26/2019	22.26	3.0-13.0	13.0	NM	4.30	NA	17.96
	3/11/2019				NM	4.54	NA	17.72
	4/25/2019				NM	5.46	NA	16.80
	7/8/2019				4.37	4.48	0.11	17.86
01589 MW-34	2/26/2019	26.56	3.0-13.0	13.0	NM	8.08	NA	18.48
	3/11/2019				NM	8.35	NA	18.21
	4/25/2019				NM	9.43	NA	17.13
	7/8/2019				NM	8.11	NA	18.45
01589 MW-35	2/26/2019	25.15	3.0-13.0	13.0	NM	6.85	NA	18.30
	3/11/2019				NM	7.11	NA	18.04
	4/25/2019				NM	8.33	NA	16.82
	7/8/2019				NM	6.92	NA	18.23
01589 MW-36	2/26/2019	19.00	3.0-13.0	13.0	NM	2.60	NA	16.40
	3/11/2019				NM	2.76	NA	16.24
	4/25/2019				NM	3.66	NA	15.34
	7/8/2019				NM	2.21	NA	16.79
01589 MW-37	2/26/2019	23.01	3.0-13.0	13.0	NM	8.31	NA	14.70
	3/11/2019				NM	8.51	NA	14.50
	4/25/2019				NM	9.72	NA	13.29
	7/8/2019				NM	8.03	NA	14.98
01589 MW-38	2/26/2019	23.25	3.0-13.0	13.0	NM	8.19	NA	15.06
	3/11/2019				NM	8.36	NA	14.89
	4/25/2019				NM	9.50	NA	13.75
	7/8/2019				NM	8.01	NA	15.24
01589 DMW-1	11/22/2018	21.84	34.0 - 39.0	39.0	NM	5.11	NA	16.73
	2/26/2019				NM	4.87	NA	16.97
	3/11/2019				NM	4.94	NA	16.90
	4/25/2019				NM	5.81	NA	16.03
	7/8/2019				NM	4.13	NA	17.71
01589 DMW-2	11/22/2018	18.81	34.0 - 39.0	39.0	NM	8.25	NA	10.56
	2/26/2019				NM	3.81	NA	15.00
	3/11/2019				NM	3.89	NA	14.92
	4/25/2019				NM	4.91	NA	13.90
	7/8/2019				NM	3.49	NA	15.32

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NA = not applicable

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\* = product thickness measured through use of a bailer

**Table 1**  
**Groundwater Elevation Data**  
**Circle K 2720886**  
**4315 Savannah Highway**  
**Ravenel, Charleston County, South Carolina**  
**UST Permit #01589**

Monitoring Well Identification	Gauging Date	Top of Casing Elevation (feet)	Screened Interval (feet btoc)	Depth of Well (feet btoc)	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Product Thickness (feet)	Water Table Elevation* (feet)
01589 DMW-3	11/22/2018	23.33	35.0 - 40.0	40.0	NM	3.65	NA	19.68
	2/26/2019				NM	8.20	NA	15.13
	3/11/2019				NM	8.34	NA	14.99
	4/25/2019				NM	9.13	NA	14.20
	7/8/2019				NM	7.92	NA	15.41
01589 DMW-4	7/8/2019	21.13	40.0 - 45.0	45.0	NM	4.30	NA	16.83
01589 DMW-5	7/8/2019	26.38	38.0 - 43.0	43.0	NM	8.06	NA	18.32
01589 RW-1	11/22/2018	21.63	2.0 - 12.0	12.0	NM	4.68	NA	16.95
	2/26/2019				4.01	4.71	0.70	17.44
	3/11/2019				NM	4.43	NA	17.20
	4/25/2019				NM	5.15	NA	16.48
	7/8/2019				NM	4.05	NA	17.58
01589 RW-2	11/22/2018	21.51	2.0 - 12.0	12.0	NM	4.28	NA	17.23
	2/26/2019				3.91	3.95	0.04	17.59
	3/11/2019				4.20	4.24	0.04	17.30
	4/25/2019				NM	4.69	NA	16.82
	7/8/2019				3.60	3.78	0.18	17.73
01589 RW-3	11/22/2018	21.95	2.0 - 12.0	12.0	NM	4.60	NA	17.35
	2/26/2019				NM	4.36	NA	17.59
	3/11/2019				NM	4.58	NA	17.37
	4/25/2019				NM	5.14	NA	16.81
	7/8/2019				3.80	5.36	1.56	16.59
01589 RW-4	11/22/2018	21.80	2.0 - 12.0	12.0	NM	3.91	NA	17.89
	2/26/2019				NM	3.70	NA	18.10
	3/11/2019				NM	3.88	NA	17.92
	4/25/2019				NM	4.49	NA	17.31
	7/8/2019				NM	3.38	NA	18.42
01589 RW-5	11/22/2018	19.76	2.0 - 12.0	12.0	2.80	3.16	0.36	16.87
	2/26/2019				2.52	3.11	0.59	17.09
	3/11/2019				2.76	3.31	0.55	16.86
	4/25/2019				3.25	5.02	1.77	16.05
	7/8/2019				2.08	3.72	1.64	17.25
01589 RW-6	11/22/2018	19.20	2.0 - 12.0	12.0	3.11	4.42	1.31	15.75
	2/26/2019				1.91	4.09	2.18	16.72
	3/11/2019				2.52	2.98	0.46	16.56
	4/25/2019				2.95	4.67	1.72	15.80
	7/8/2019				1.70	3.70	2.00	16.98

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\* = product thickness measured through use of a bailer

**Table 1**  
**Groundwater Elevation Data**  
**Circle K 2720886**  
**4315 Savannah Highway**  
**Ravenel, Charleston County, South Carolina**  
**UST Permit #01589**

Monitoring Well Identification	Gauging Date	Top of Casing Elevation (feet)	Screened Interval (feet btoc)	Depth of Well (feet btoc)	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Product Thickness (feet)	Water Table Elevation* (feet)
01589 RW-7	2/26/2019	21.53	3.0-13.0	13.0	NM	4.40	NA	17.13
	3/11/2019				NM	4.66	NA	16.87
	4/25/2019				NM	5.37	NA	16.16
	7/8/2019				4.12	4.57	0.45	17.29
01589 RW-8	2/26/2019	18.67	3.0-13.0	13.0	2.30	2.31	0.01	16.37
	3/11/2019				2.47	2.48	0.01	16.20
	4/25/2019				3.25	4.36	1.11	15.13
	7/8/2019				2.07	2.37	0.30	16.52
01589 RW-9	2/26/2019	19.36	3.0-13.0	13.0	2.90	3.14	0.24	16.40
	3/11/2019				3.11	3.21	0.10	16.22
	4/25/2019				3.42	5.15	1.73	-3.87
	7/8/2019				2.75	3.61	0.86	16.39
01589 RW-10	2/26/2019	17.00	3.0-13.0	13.0	2.00	3.99	1.99	14.48
	3/11/2019				2.28	2.61	0.33	14.63
	4/25/2019				3.00	4.57	1.57	13.59
	7/8/2019				2.07	3.44	1.37	14.57
01589 RW-11	2/26/2019	17.49	1.0-6.0	6.0	1.39	1.80	0.41	15.99
	3/11/2019				not gauged		0.50*	NM
	4/25/2019				not gauged		1.30*	NM
	7/8/2019				1.05	2.55	1.50	16.05
01589 RW-12	2/26/2019	17.05	1.0-6.0	6.0	NM	1.09	NA	15.96
	3/11/2019				NM	1.19	NA	15.86
	4/25/2019				NM	2.06	NA	14.99
	7/8/2019				NM	0.86	NA	16.19

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\* = product thickness measured through use of a bailer

Table 3  
 Historical Groundwater Analytical Data  
 Circle K 3772086  
 4315 Savannah Highway  
 Revere, Charleston County, South Carolina  
 UST Permit #01589

Monitoring Well Identification	Sample Date	Petroleum Constituents (ug/L)								Organics (ug/L)							
		Benzene	Toluene	Ethylbenzene	Xylenes, Total	Methyl tert butyl ether	Heptahelene	1,2-Dichloroethane (DCA)	HE	HE	Diisopropyl ether	Diethyl ether	tert-Butyl alcohol	tert-Butyl methyl ether	tert-Butyl methyl ether	ethyl tert-butyl ether	tert-butyl formate
01589 MW-1	07/10/2019	5.8	1,000	700	16,000	48.0	25.0	5.0	10,000	150	150	1,000	240	120	47.0	NE	
	11/29/2018	1770	4040	220	11400	1850	<250	<250	<25000	<250	<250	<25000	<25000	<25000	<2500	<12500	
01589 MW-2	07/10/2019	21000	62000	3600	18000	3100	480J	<500	10000	<500	10000	4100J	29000	<5000	880	<2500	
	11/29/2018	10000	21600	1690	9750	559	236	>125	<12500	<175	<2000	<25000	16200	<1750	>1750	<6250	
01589 MW-3	07/09/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<100	<200	<100	<100	<100	<1000	
	11/29/2018	4.7	2.9	<1.0	0.94J	<1.0	<1.0	<1.0	<20	<1.0	<100	<20	14J	<10	<1.0	<5.0	
01589 MW-4	07/09/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<100	<200	<100	<100	<100	<50.0	
	11/29/2018	>1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<1.0	<100	<20	<10	<10	<1.0	<5.0	
01589 MW-5	07/09/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<100	<200	<100	<100	<100	<50.0	
	11/29/2018	>1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<1.0	<100	<20	<10	<10	<1.0	<5.0	
01589 MW-6	07/09/2019	no sample collected due to the presence of 0.09 feet of free product															
	11/29/2018	no sample collected due to the presence of 0.76 feet of free product															
01589 MW-7	07/09/2019	9210	34100	2390	17700	<200	271	<200	<20000	<200	<2000	<40000	<20000	<20000	<2000	<10000	
	11/29/2018	13000	45000	2600	13000	<200	370	<200	<4000	<200	<2000	<20000	<4000	17000	<2000	94J	
01589 MW-8	07/09/2019	>1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<100	<200	<100	<100	<100	<50.0	
	11/29/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<1.0	<100	<20	9.8J	<10	<1.0	<5.0	
01589 MW-9	07/09/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<100	<200	<100	<100	<100	<50.0	
	11/29/2018	<1.0	<1.0	<1.0	<1.0	14	<1.0	<1.0	<20	<1.0	<100	<20	15J	<10	0.58J	<5.0	
01589 MW-10	07/09/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<100	<200	<100	<100	<100	<50.0	
	11/29/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<1.0	<100	<20	<10	<10	<1.0	<5.0	
RBSL		5.0	1,000	700	10,000	40.0	25.0	5.0	HE	150	150	10,000	1,400	240	120	47.0	

Notes:  
 NE = Not established  
 U/L = ug/L  
 \* = Not detected at or above the laboratory reporting limit  
 RBSL = May 15, 2001 Risk Based Screening Level  
 Bold concentrations equal or exceed the corresponding RBSL

Table 3  
 Historical Groundwater Analytical Data  
 Circle K 2770086  
 4315 Savannah Highway  
 Ravenel, Charleston County, South Carolina  
 UST Permit #01585

Monitoring Well Identification	Sample Date	Petroleum Constituents (µg/L)										Oxygenates (µg/L)					
		Benzene	Toluene	Ethylbenzene	Xylenes, Total	Methyl tert-butyl ether	1,2-Dichloroethane (DCA)	ethyl tert-butyl alcohol	Diisopropyl ether	Etanol	tert-butyl alcohol	tert-butyl methyl ether	tert-butyl alcohol	tert-butyl methyl ether	ethyl tert-butyl ether	tert-butyl formate	
01585 MW-11	07/05/2019	5.9	1,000	708	10,000	40.0	25.9	5.9	NE	158	10,000	1,400	248	128	47.9	NE	
	11/29/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<200	<20	<20	<10.0	>10.0	<50.0	
01585 MW-12	07/10/2019	410	12.7	46.5	24.5	9.8	9.1	<2.5	<2.5	<500	<2.5	1370	<25.0	25.9	<125		
	11/28/2018	700	35	110	70	<20	193	<20	<400	<2000	<400	3300	<200	183	<100		
01585 MW-13	07/10/2019	31.2	19.5	490	1630	<5.0	164	<5.0	<500	<50	<1000	<500	<400	<200	<250		
	11/28/2018	130	80	3300	3900	<20	470	<20	<400	<2000	<400	<400	<400	<200	<100		
01585 MW-14	07/10/2019	<1.0	<1.0	<1.0	<1.0	<1.0	4.1	<1.0	<1.0	<200	<100	<20	<20	<10.0	<50.0		
	11/29/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<100	<20	<20	<10	<1.0	<50		
01585 MW-15	07/10/2019	2640	7910	982	4050	<50.0	120	<50.0	<5000	>10000	<5000	6950	<500	<500	<2500		
	11/29/2018	2100	7400	930	4600	<100	100	<100	<2000	<10000	<2000	8800	<1000	510	<500		
01585 MW-16	07/10/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<100	<100	<100	<100	<100	<50.0		
	11/29/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<100	<100	<100	<100	<100	<50		
01585 MW-17	07/10/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<100	<100	<100	<100	<100	<50.0		
	11/29/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<100	<20	<20	<10	<10.0	<50		
01585 MW-18	07/10/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<100	<100	<100	<100	<100	<50.0		
	11/29/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<100	<20	<20	<10	<10.0	<50		
01585 MW-19	07/10/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<100	<100	<100	<100	<100	<50.0		
	11/29/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<100	<20	<20	<10	<10.0	<50		
01585 MW-20	07/10/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<100	<100	<100	<100	<100	<50.0		
	11/29/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<100	<20	<20	<10	<10.0	<50		
RBSL		5.0	1,000	700	10,000	40.0	25.0	5.0	NE	150	10,000	1,400	240	128	47.0	NE	

Notes  
 Units = µg/L  
 NE = Not established  
 <C = Not detected at or above the laboratory reporting limit  
 RBSL = May 15, 2001 Risk Based Screening Level  
 Bold concentrations equal or exceed the corresponding RBSL



Table 3  
 Historical Groundwater Analytical Data  
 Circle K 272886  
 4315 Serranah Highway  
 Ravenel, Charleston County, South Carolina  
 UST Permit #01589

Monitoring Well Identification	Sample Date	Petroleum Constituents (ppg.)								Organics (ppg.)						
		Benzene	Toluene	Ethylbenzene	Xylenes, Total	Methyl tert-butyl ether	Heptane	1,2-Dichloroethane (DCA)	3H	Diisopropyl ether	Ethanol	tert-Butyl alcohol	tert-Butyl methyl ether	tert-Butyl methyl ether	ethyl tert-butyl ether	tert-Butyl formate
01589 MW-36	07/10/2019	14.5	102	113	223	<1.0	12.9	<1.0	<100	<1.0	<200	<100	148	<10.0	47.8	NE
01589 MW-37	07/10/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0
01589 MW-38	07/09/2019	73.8	<1.0	<1.0	2.1	11.2	<1.0	<1.0	<100	<1.0	<200	<100	138	<10.0	<10.0	<50.0
01589 DMW-1	07/10/2019	7.1	1.1	1.1	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0
	11/28/2018	13.0	16	14	48	12	1.3	<1.0	<20	<1.0	<100	24	190	<10	6.5	<5.0
01589 DMW-2	07/09/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0
	11/28/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0
01589 DMW-3	07/09/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0
	11/28/2018	<1.0	1.2	<1.0	0.66J	<1.0	<1.0	<1.0	<70	<1.0	<200	<20	<20	<10	<1.0	<5.0
01589 DMW-4	07/10/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0
	11/28/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0
01589 DMW-5	07/10/2019	12300	27900	1700	11800	1400	281	<200	<20000	<200	<10000	<20000	<20000	<2000	<2000	<10000
	11/28/2018	20000	47000	2100	16000	3400	<500	<500	<10000	<500	<50000	5100J	34000	<5000	750	<2500
01589 RW-2	07/09/2019	21000	54000	3300	17000	2100	430J	<500	<10000	<500	59000000	13000	31000	<5000	760	<2500
	11/28/2018	no sample collected due to the presence of 0.18 level of free product														
01589 RW-3	07/09/2019	15000	41000	2800	15000	530	360J	<500	<10000	<500	<50000	21000	<5000	<500	<500	<2500
	11/28/2018	3.3	<1.0	<1.0	<1.0	1.4	<1.0	<1.0	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0
01589 RW-4	07/10/2019	1.5	5.6	2.8	6.9	<1.0	<1.0	<1.0	<20	<1.0	<100	<20	77	<10	<1.0	<5.0
	11/28/2018	5.0	1.000	700	10,000	40.0	25.0	5.0	NE	150	10,000	1,400	240	128	47.8	NE

Notes:  
 Units = ppb  
 NE = Not established  
 'c' = Not detected at or above the laboratory reporting limit  
 RBSL = May 15, 2001 Risk Based Screening Level  
 Bold concentrations equal or exceed the corresponding RBSL.

Table 3  
 Historical Groundwater Analytical Data  
 Circle K 2720816  
 4315 Savannah Highway  
 Ravenel, Charleston County, South Carolina  
 UST Permit #01333

Monitoring Well Identification	Sample Date	Petroleum Constituents (µg/L)										Organics (µg/L)					
		Benzene	Toluene	Ethylbenzene	Xylenes, Total	Methyl tert-butyl ether	Naphthalene	1,2-Dichloroethane (DCA)	ethyl tert-butyl alcohol	Diisopropyl ether	Ethanol	tert-Butyl alcohol	tert-Butyl acetate	tert-Butyl methyl ether	tert-Butyl ether	tert-butyl formate	
RBSL		5.0	1,000	700	10,000	40.0	25.0	5.0	NE	150	10,000	1,400	740	120	47.0	NE	
01569 MW-21	07/05/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	11/29/2018	0.57	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01569 MW-22	07/05/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	11/29/2018	0.5	<1.0	<1.0	0.41	<1.0	<1.0	<1.0	<2.0	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01569 MW-23	07/09/2019	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<1.0	<1.0	1.3	<200	<100	<100	<10.0	<10.0	<50.0	
	11/29/2018	<1.0	<1.0	<1.0	<1.0	5.1	<1.0	<1.0	<2.0	3.5	<100	31	340	<10	<1.0	<5.0	
01569 MW-24	07/09/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	11/29/2018	29	<1.0	<1.0	<1.0	0.63	<1.0	<1.0	<2.0	<1.0	<100	<20	<20	<10	0.46	<5.0	
01569 MW-25	07/09/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	11/29/2018	<1.0	<1.0	<1.0	<1.0	1.7	<1.0	<1.0	<2.0	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01569 MW-26	07/09/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	11/29/2018	<1.0	1.0	0.83	3.9	0.88	<1.0	<1.0	<2.0	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01569 MW-27	07/09/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	11/29/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01569 MW-28	07/09/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	11/29/2018	<1.0	<1.0	<1.0	<1.0	0.43	<1.0	<1.0	<2.0	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01569 MW-29	07/05/2019	2.2	<1.0	<1.0	<1.0	7.4	<1.0	<1.0	<1.0	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	11/29/2018	35	<1.0	<1.0	<1.0	84	<1.0	<1.0	<2.0	1	<100	150	190	571	27	<5.0	
01569 MW-30	07/09/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	11/29/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01569 MW-31	07/09/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	11/29/2018	<1.0	<1.0	<1.0	<1.0	4.4	2.6	<1.0	<2.0	<1.0	<100	<20	<20	<10	3.5	<5.0	
01569 MW-32	07/09/2019	306	9.3	9.7	17.1	11.4	<2.0	<2.0	<2.0	<2.0	<400	<200	284	<20.0	<20.0	<100	
01569 MW-33	07/09/2019	no sample collected due to the presence of 0.11 feet of free product															
01569 MW-34	07/10/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	<200	<100	<100	<10.0	<10.0	<50.0	
RBSL		5.0	1,000	700	10,000	40.0	25.0	5.0	NE	150	10,000	1,400	740	120	47.0	NE	

Notes:  
 NE = Not ester sheet  
 UHS = µg/L  
 \* = Not detected at or above the laboratory reporting limit.  
 RBSL = May 15, 2001 Risk Based Screening Level  
 Bold concentrations equal or exceed the corresponding RBSL

Table 3  
 Historical Groundwater Analytical Data  
 Circle K 272826  
 4115 Serranah Highway  
 Ravenel, Charleston County, South Carolina  
 UST Permit #01593

Monitoring Well Identification	Sample Date	Petroleum Constituents (mg/L)										Oxygenates (mg/L)					
		Benzene	Toluene	Ethylbenzene	Xylenes, Total	Methyl tert-butyl ether	Heptane	1,2-Dichloroethane (DCA)	tert-butyl methyl alcohol	Dimethyl ether	Ethanol	tert-butyl methyl alcohol	tert-butyl methyl ether	tert-butyl methyl alcohol	tert-butyl methyl ether	tert-butyl methyl alcohol	tert-butyl methyl ether
01589 RW-5	07/08/2019	5.0	1,000	700	10,000	40.0	25.0	5.0	NE	150	10,000	1,400	240	240	120	47.0	NE
	11/29/2018	no sample collected due to the presence of 1.64 feet of free product															
01589 RW-6	07/08/2019	no sample collected due to the presence of 0.36 feet of free product															
	11/29/2018	no sample collected due to the presence of 2.00 feet of free product															
01589 RW-7	07/08/2019	no sample collected due to the presence of 0.45 feet of free product															
01589 RW-8	07/08/2019	no sample collected due to the presence of 0.30 feet of free product															
01589 RW-9	07/08/2019	no sample collected due to the presence of 0.66 feet of free product															
01589 RW-10	07/08/2019	no sample collected due to the presence of 1.37 feet of free product															
01589 RW-11	07/08/2019	no sample collected due to the presence of 1.50 feet of free product															
01589 RW-12	07/10/2019	43.0	6410	556	5060	23.8	170	<50.0	<500	<50.0	<10000	<5000	5030	<500	<500	<2600	NE
RBSL		5.0	1,000	700	10,000	40.0	25.0	5.0	NE	150	10,000	1,400	240	240	120	47.0	NE

Notes:  
 NE = Not established  
 Urea = 10%  
 \* = Not detected at or above the laboratory reporting limit  
 RBSL = May 15, 2001 Risk Based Screening Level  
 Bold concentrations equal or exceed the corresponding RBSL

**Table 5**  
**Historical Potable Water Well Data**  
**Circle K 2720886**  
**4315 Savannah Highway**  
**Ravenel, Charleston County, South Carolina**  
**UST Permit #01589**

Monitoring Well Identification	Sample Date	Petroleum Constituents (ug/L)										Oxygenates (ug/L)					
		Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Naphthalene	1,2-Dichloroethane (DCA)	ethyl tert-butyl alcohol	Di isopropyl ether	Ethanol	tert-butyl alcohol	tert-Butyl alcohol	tert-Amyl methyl ether	ethyl tert-butyl ether	tert-butyl formate	
<b>RBSL</b>		<b>5.0</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>40.0</b>	<b>25.0</b>	<b>5.0</b>	<b>NE</b>	<b>150</b>	<b>10,000</b>	<b>1,400</b>	<b>240</b>	<b>428</b>	<b>47.0</b>	<b>NE</b>	
01589 WSW-1	07/09/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	08/17/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01589 WSW-2D	07/09/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	08/17/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01589 WSW-2	07/09/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	08/17/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01589 WSW-3	07/09/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	08/23/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01589 WSW-4	07/09/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	08/20/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01589 WSW-5	07/09/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	08/17/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01589 WSW-6	07/09/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	08/17/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01589 WSW-7	07/09/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	8/17/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01589 WSW-8	07/09/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	08/17/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01589 WSW-9	07/09/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	08/17/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0	

Units = ug/L  
 \*c\* = Not detected at or above the laboratory reporting limit  
 RBSL = May 15, 2001 SCDHEC Risk Based Screening Level  
 Bold concentrations equal or exceed the corresponding RBSL  
 NE = Not established

Table 5  
 Historical Potable Water Well Data  
 Circle K Z720886  
 4315 Savannah Highway  
 Ravenel, Charleston County, South Carolina  
 UST Permit #01589

Monitoring Well Identification	Sample Date	Petroleum Constituents (ug/L)										Oxygenates (ug/L)						
		Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Naphthalene	1,2-Dichloroethane (DCA)	ethyl tert-butyl alcohol	Di isopropyl ether	Ethanol	tert-butyl alcohol	tert-Butyl alcohol	tert-Amyl alcohol	tert-Amyl methyl ether	ethyl tert-butyl ether	tert-Butyl formate	
RBSL		5.0	1,000	700	10,000	40.0	25.0	5.0	NE	150	10,000	1,400	240	128	47.0	NE		
01589 WSW-10	07/09/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0		
	08/20/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<10.0	<5.0		
01589 WSW-11	07/09/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0		
	08/17/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<10.0	<5.0		
01589 WSW-12	07/08/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0		
	08/17/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<10.0	<5.0		
01589 WSW-13	07/10/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0		
	08/29/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<10.0	<5.0		
01589 WSW-14	07/08/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0		
	08/17/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<10.0	<5.0		
01589 WSW-15	07/08/2019	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<10.0	<5.0		
	08/23/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<10.0	<5.0		
01589 WSW-16	07/10/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0		
	09/27/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<10.0	<5.0		
01589 WSW-17	07/08/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0		
	08/31/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<10.0	<5.0		

Units = ug/L  
 \*c\* = Not detected at or above the laboratory reporting limit  
 RBSL = May 15, 2001 SCDHEC Risk Based Screening Level  
 Bold concentrations equal or exceed the corresponding RBSL  
 NE = Not established



**Table 5**  
**Historical Potable Water Well Data**  
**Circle K 2720886**  
**4315 Savannah Highway**  
**Ravenel, Charleston County, South Carolina**  
**UST Permit #01589**

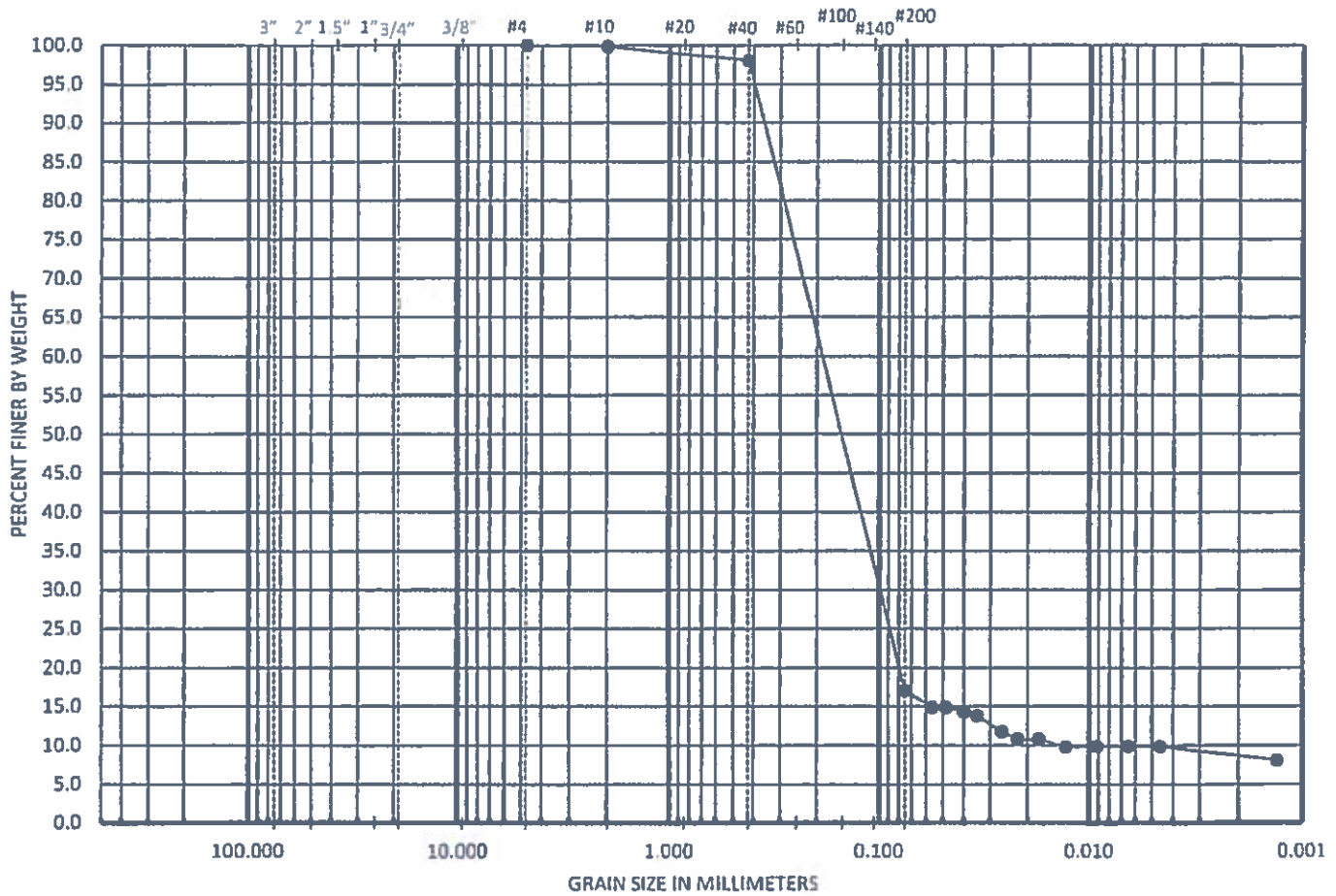
Monitoring Well Identification	Sample Date	Petroleum Constituents (ug/L)								Oxygenates (ug/L)							
		Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Naphthalene	1,2-Dichloroethane (DCA)	ethyl tert-butyl alcohol	Di Isopropyl ether	Ethanol	tert-Butyl alcohol	tert-Amyl alcohol	tert-Amyl methyl ether	ethyl tert-butyl ether	tert-Butyl formate	
<b>RBSL</b>		<b>5.0</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>40.0</b>	<b>25.0</b>	<b>5.0</b>	<b>NE</b>	<b>150</b>	<b>10,000</b>	<b>1,400</b>	<b>240</b>	<b>128</b>	<b>47.0</b>	<b>NE</b>	
01589 WSW-18	07/08/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	08/22/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01589 WSW-19	07/08/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	08/23/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<200	<20	<20	<10	<1.0	<5.0	
01589 WSW-20	07/08/2019	sample collection permission was not granted															
	08/23/2018	sample collection permission was not granted															
01589 WSW-21	07/08/2019	sample collection permission was not granted															
	08/23/2018	sample collection permission was not granted															
01589 WSW-22	07/08/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	08/22/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01589 WSW-23	07/08/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	08/27/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01589 WSW-24	07/10/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	08/22/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01589 WSW-25	07/08/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	08/23/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01589 WSW-26	07/08/2019	<0.50	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	<100	<1.0	<200	<100	<100	<10.0	<10.0	<50.0	
	08/27/2018	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<1.0	<100	<20	<20	<10	<1.0	<5.0	
01589 WSW-27	07/08/2019	sample collection permission was not granted															
	08/23/2018	sample collection permission was not granted															
01589 WSW-28	07/08/2019	sample collection permission was not granted															
	08/23/2018	sample collection permission was not granted															
01589 WSW-29	07/08/2019	sample collection permission was not granted; the property is currently provided potable water from a municipal source															
	08/23/2018	sample collection permission was not granted; the property is currently provided potable water from a municipal source															

Units = ug/L  
 \*c\* = Not detected at or above the laboratory reporting limit  
 RBSL = May 15, 2001 SCDHEC Risk Based Screening Level  
 Bold concentrations equal or exceed the corresponding RBSL  
 NE = Not established

**Table 2**  
**Historical Surface Water Analytical Data**  
**Volatile Organic Compounds and SCDHEC-Regulated Oxygenates**  
**Circle K 2720886**  
**4315 Savannah Highway**  
**Ravenel, Charleston County, South Carolina**  
**UST Permit #01589**

Sample Location	Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes, Total	Methyl tert butyl ether	Naphthalene	1,2-Dichloroethane (1,2-DCA)	ethyl tert-butyl alcohol	Obacpropyl ether	Ethanol	tert-Butyl alcohol	tert-Amyl alcohol	tert-Amyl methyl ether	ethyl tert-butyl ether	tert-butyl formate
01589 SW-1	11/29/2018	5.0	1,000	700	10,000	40.0	25.0	5.0	ME	150	10,000	1,000	240	128	47.0	ME
	01/13/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	>20	<1.0	<100	>20	>20	<10	<10	<5.0
01589 SW-2	11/29/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<1.0	<100	<20	<20	<10	<10	<5.0
	01/13/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<200	<100	<100	<10	<10	<50.0
01589 SW-3	11/29/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<1.0	<100	<20	<20	<10	<10	<5.0
	01/13/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<200	<100	<100	<10	<10	<50.0
01589 SW-4	11/30/2018	150	750	34	300	>5.0	B	<5.0	>100	>5.0	>500	>100	>100	>5.0	>5.0	>75
	01/13/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<1.0	<100	<20	<20	<10	<10	<5.0
01589 SW-5	11/30/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<1.0	<100	<20	<20	<10	<10	<5.0
	01/13/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<1.0	<100	<20	<20	<10	<10	<5.0
01589 SW-6	11/30/2018	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	<1.0	<20	<1.0	<100	<20	<20	<10	<10	<5.0
	01/13/2019	<1.0	2	4.3	32.6	<1.0	<1.0	<1.0	<20	<1.0	<200	<100	<100	<10	<10	<50.0
01589 SW-7	11/30/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<1.0	<100	<20	<20	<10	<10	<5.0
	01/13/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<200	<100	<100	<10	<10	<50.0
01589 SW-8	11/30/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<1.0	<100	<20	<20	<10	<10	<5.0
	01/13/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<200	<100	<100	<10	<10	<50.0
01589 SW-9	11/30/2018	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<1.0	<100	<20	<20	<10	<10	<5.0
	01/13/2019	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<100	<1.0	<200	<100	<100	<10	<10	<50.0
RBBL		5.0	1,000	700	10,000	40.0	25.0	5.0	ME	150	10,000	1,000	240	128	47.0	ME

Notes:  
 Units = µg/L, EPA Analytical Method 8260B.  
 <- = Not detected at or above the laboratory reporting limit.  
 RBBL = May 15, 2001 Risk Based Screening Level.  
 Bold concentrations equal or exceed the corresponding RBBL.  
 ME = Not established.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

PROJECT	SAMPLE		SAMPLE DESCRIPTION					
K886 Tier II	MW-1 @ 10'		Clayey Silty Sand (SC-SM), bluish-grey & tan					
TEST METHOD	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
ASTM D422	4.75	0.185	0.100	0.014	0.0	83.0	7.2	9.8

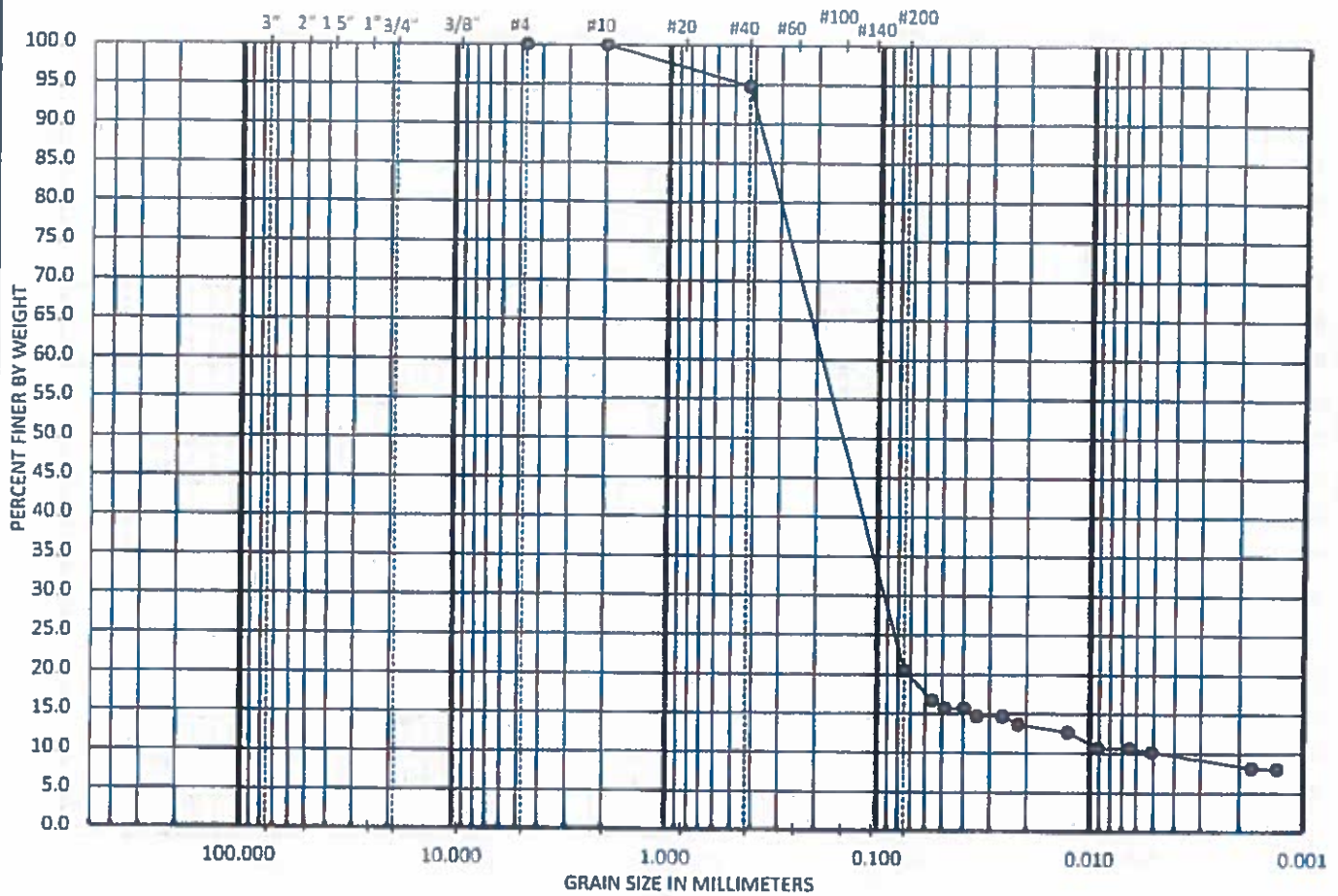
PERCENT FINER

SIEVE SIZE	No. 200	No. 40	No. 10	No. 4
Percent Finer	17.0	98.0	99.8	100.0

Tested By:	TCM	Reviewed By:	TCM	Calculations By:	TCM
Date:	12.20.2018	Date:	12.20.2018	Date:	12.20.2018



Project Name:	ATC GROUP SERVICES LLC
Lab Address:	7499 PARKLANE ROAD, SUITE 112 COLUMBIA, SC 29223
Project No.:	257.HYDRO.001



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

PROJECT	SAMPLE		SAMPLE DESCRIPTION					
K886 Tier II	MW-22 @ 10'		Clayey Silty Sand (SC-SM), grey-tan					
TEST METHOD	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
ASTM D422	2.00	0.193	0.096	0.005	0.0	79.5	10.3	10.2

PERCENT FINER

SIEVE SIZE	No. 200	No. 40	No. 10	No. 4
Percent Finer	20.5	94.8	99.96	100.0

Tested By: TCM	Reviewed By: TCM	Calculations By: TCM
Date: 12.20.2018	Date: 12.20.2018	Date: 12.20.2018

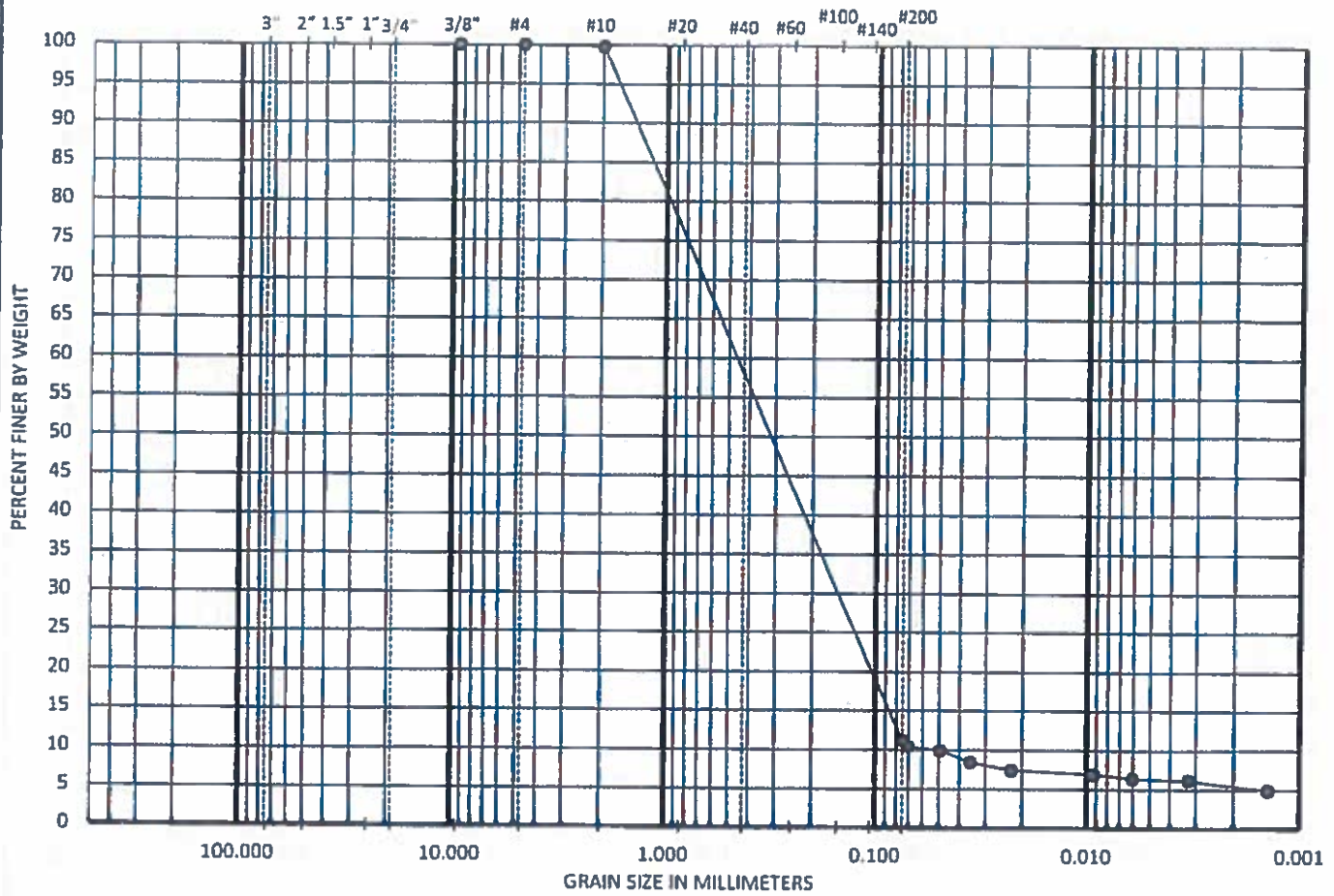


Project Name:	ATC GROUP SERVICES LLC
Lab Address:	7499 PARKLANE ROAD, SUITE 112 COLUMBIA, SC 29223
Project No.:	257.HYDRO.001









COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

PROJECT	SAMPLE		SAMPLE DESCRIPTION					
K886 Tier II	DMW-1 @ 35'		Clayey Silty Sand (SC-SM), tan					
TEST METHOD	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
ASTM D422	4.75	0.45	0.150	0.075	0.0	88.8	4.9	6.3

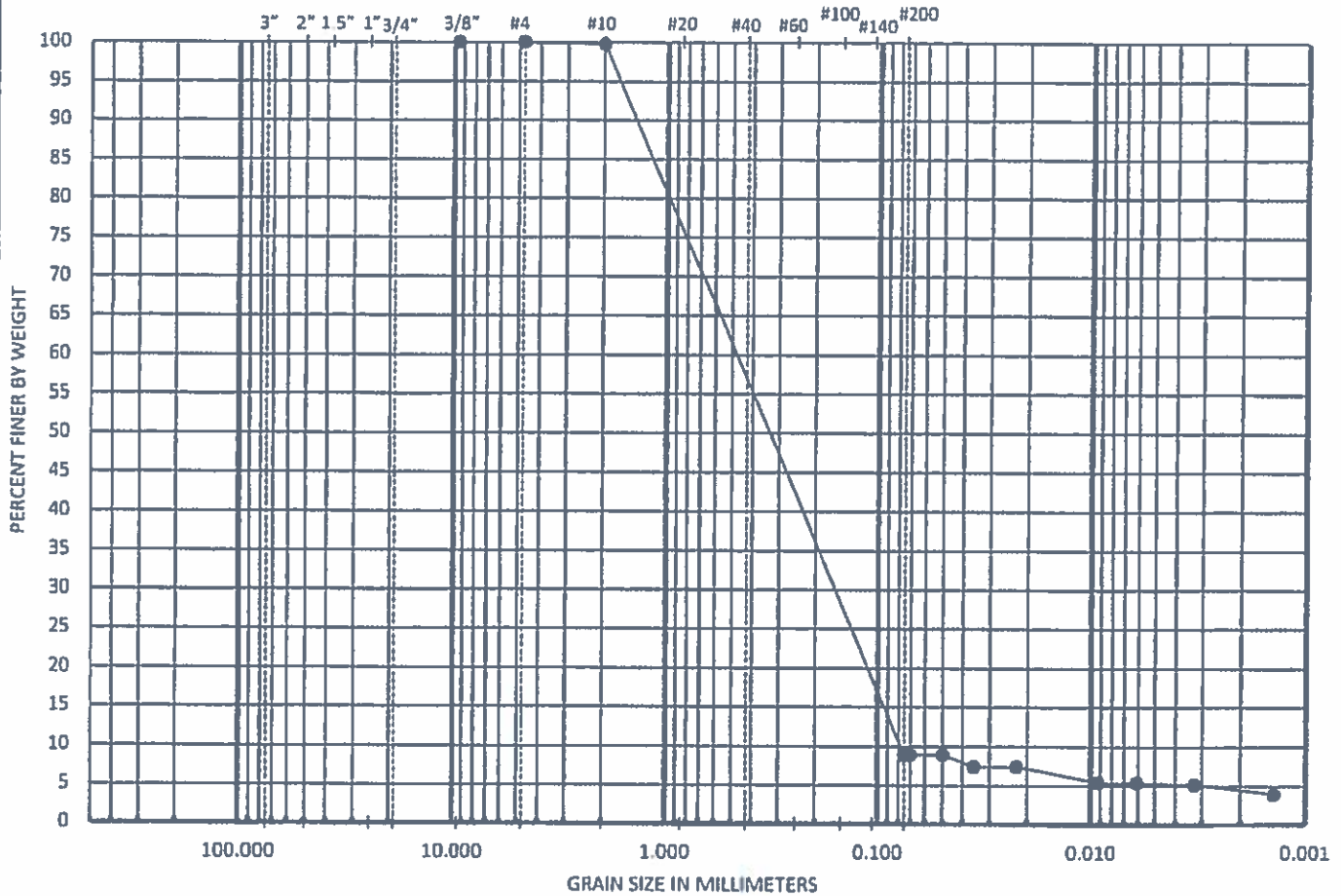
PERCENT FINER

SIEVE SIZE	No. 200	No. 10	No. 4	3/8"
Percent Finer	11.2	99.8	100	

Tested By: TCM	Reviewed By: TCM	Calculations By: TCM
Date: 12.20.2018	Date: 12.20.2018	Date: 12.20.2018



Project Name:	ATC GROUP SERVICES LLC
Lab Address:	7499 PARKLANE ROAD, SUITE 112 COLUMBIA, SC 29223
Project No.:	257.HYDRO.001



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

PROJECT	SAMPLE		SAMPLE DESCRIPTION					
K886 Tier II	DMW-2 @ 35'		Clayey Silty Sand (SC-SM), yellowish-brown					
TEST METHOD	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
ASTM D422	4.75	0.48	0.017	0.078	0.0	91.1	3.6	5.3

PERCENT FINER

SIEVE SIZE	No. 200	No. 10	No. 4	3/8"
Percent Finer	8.9	99.8	100	

Tested By:	TCM	Reviewed By:	TCM	Calculations By:	TCM
Date:	12.20.2018	Date:	12.20.2018	Date:	12.20.2018



Project Name:	ATC GROUP SERVICES LLC
Lab Address:	7499 PARKLANE ROAD, SUITE 112 COLUMBIA, SC 29223
Project No.:	257.HYDRO.001

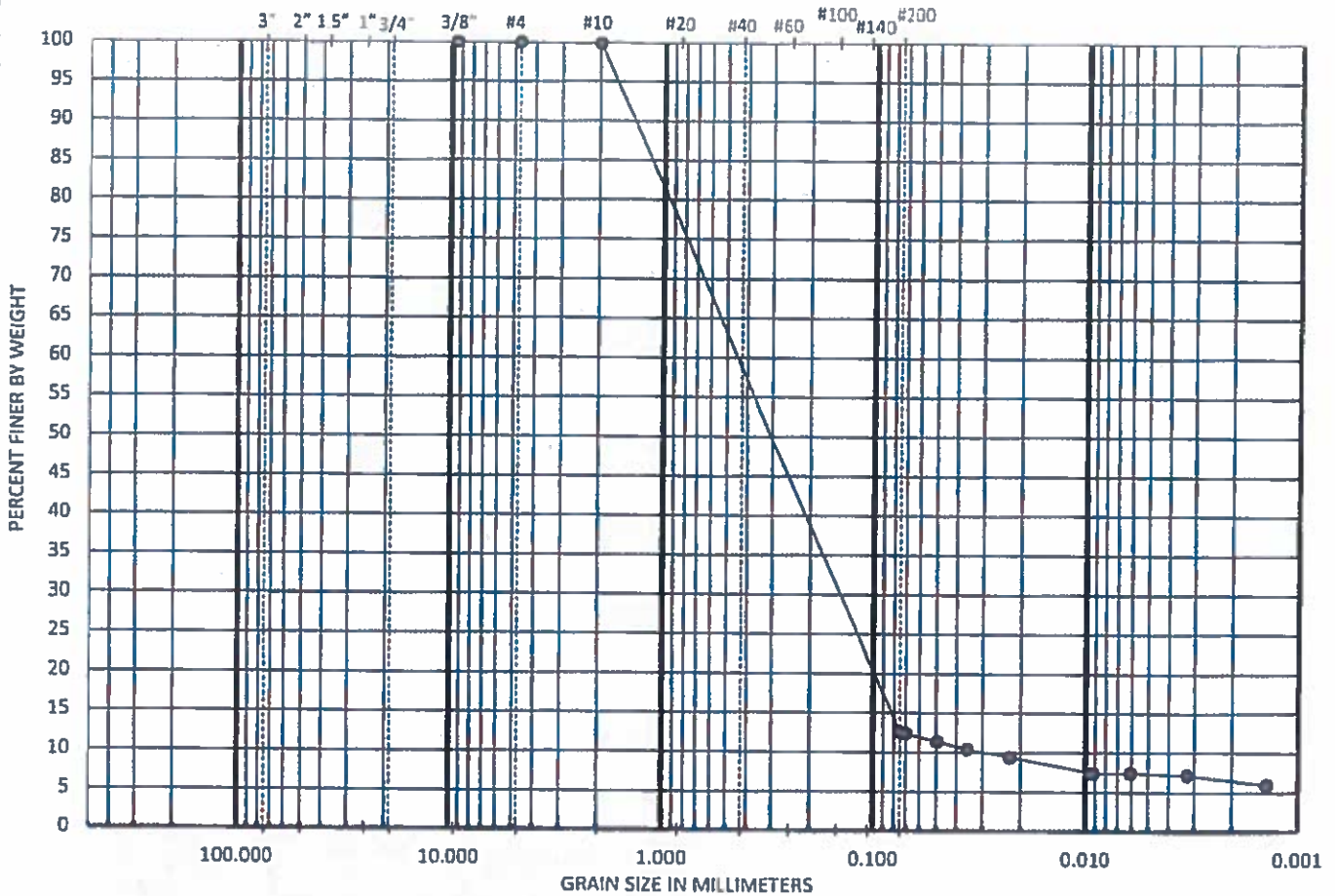
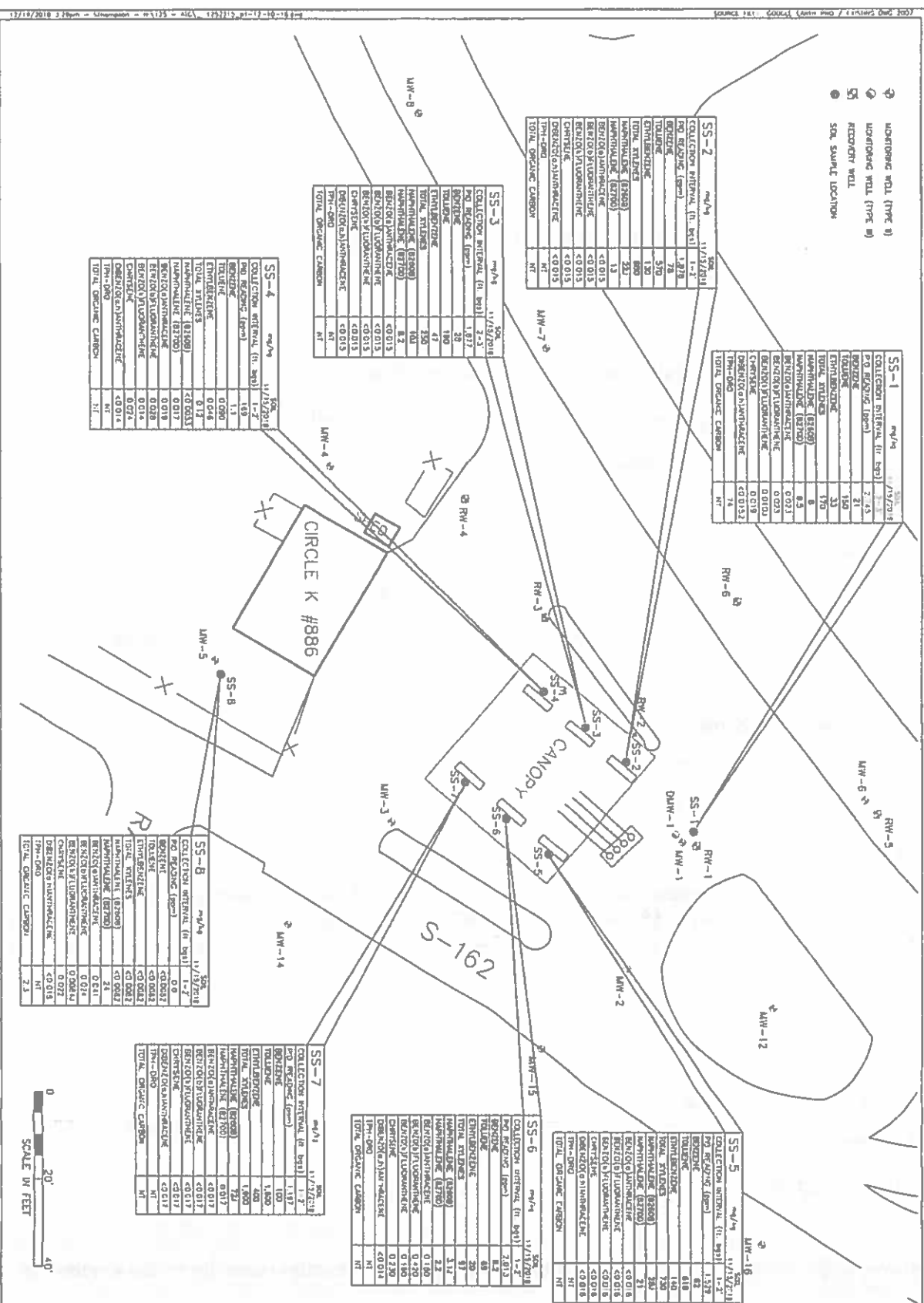


Table 2  
 Soil Analytical Data  
 Circle K 2720886  
 4315 Savannah Highway  
 Ravenel, Charleston County, South Carolina  
 UST Permit #01589

Sample Identification	Collection Interval (ft Bgs)	Collection Date	PID Reading (ppm)	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naphthalena (82608)	Naphthalena (82700)	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	TPH-DRO	Total Organic Carbon
SS-1	2-3	1/15/2018	2,745	21	150	33	170	6	6.3	0.023	0.023	0.010	0.019	<0.015	74	NT
SS-2	1-2	1/15/2018	1,878	78	570	130	680	22	13	<0.015	<0.015	<0.015	<0.015	<0.015	NT	NT
SS-3	2-3	1/15/2018	1,877	28	190	47	250	10	8.2	<0.015	<0.015	<0.015	<0.015	<0.015	NT	NT
SS-4	1-2	1/15/2018	169	1.3	0.090	0.046	0.12	<0.0053	0.017	0.019	0.028	0.014	0.024	<0.014	NT	NT
SS-5	1-2	1/15/2018	1,529	62	610	140	730	28	21	<0.016	<0.016	<0.016	<0.016	<0.016	NT	NT
SS-6	1-2	1/15/2018	2,013	8.2	69	20	97	3.1	2.2	0.180	0.420	0.160	0.230	<0.014	NT	NT
SS-7	1-2	1/15/2018	1,197	100	1,600	400	1,900	72	0.017	<0.017	<0.017	<0.017	<0.017	<0.017	NT	NT
SS-8	1-2	1/15/2018	0.0	<0.0082	<0.0082	<0.0082	<0.0082	<0.0082	24	0.041	0.024	0.0084	0.022	<0.018	NT	2.3
	RBSL			0.007	1.450	1.150	14.500	0.036	0.036	0.065	0.066	0.066	0.066	0.066	NE	NE

notes  
 all values in mg/kg  
 RBSL = SCDHEC Risk-Based Screening Level for sandy soil  
 NE = not established  
 J = estimated value  
 < = parameter not present above listed laboratory reporting limit  
 NT = not tested for this parameter  
 emboldened values exceed respective RBSL.





NOTES

**TITLE FIGURE 4**  
**CHEMICAL OF CONCERN DISTRIBUTION MAP - SOIL**  
**CIRCLE K #2720886**  
**4315 SAVANNAH HIGHWAY**  
**RAVENEL, SOUTH CAROLINA**

7499 Panlone Road, Suite 112  
 Columbia, South Carolina 29223  
 (803) 735-0003 FAX (803) 741-7444

**ATC**  
 ENVIRONMENTAL • GEOCHEMICAL  
 BUILDING SCIENCES • MATERIALS TESTING

SCALE	DATE	PROJECT NO.
1" = 20'	12-10-18	DHEC088602
TYPE CODE	PREP BY	REV BY
1252215.dwg	WH	
SCALE IN FEET	0 20' 40'	



## Summary of Surficial Aquifer Groundwater Flow Characteristics

### (Upper Extent)

Site: Circle K 2720886, 4315 Savannah Highway, Ravenel, SC

UST Permit Number: 01589

#### Horizontal Groundwater Flow Gradient:

higher groundwater elevation – lower groundwater elevation

separation distance between wells (in feet)

01589 MW-4 and 01589 MW-28

01589 MW-17 and 01589 MW-30

$\frac{18.10 - 13.16}{320.625} = 0.0154 \text{ ft/ft}$

$\frac{16.92 - 14.79}{225} = 0.0095 \text{ ft/ft}$

320.625

225

Average gradient = 0.012 ft/ft

#### Seepage Velocity ( $V = Ki/n$ )

V = Seepage Velocity in ft/year

K = Hydraulic Conductivity in ft/year

i = Horizontal Gradient

n = porosity (value selected in relation to grain size analysis of soil samples collected from the screened intervals of groundwater monitoring wells 01589 MW-1, 01589 MW-22 and 01589 MW-24 installed during this assessment and table C1 of the South Carolina Risk-Based Corrective Action for Petroleum Releases document dated May 15, 2001 )

139.978 ft/year in 00317 MW-1;

81.76 ft/year in 00317 MW-22

74.533 ft/year (adjusted) in 00317 MW-24;

98.757 ft/year average

$V \text{ (shallow)} = \frac{(98.757)(0.012)}{0.43} = 2.76 \text{ feet per year groundwater flow velocity to the northwest}$

0.43

## SUMMARY of SLUG TEST

**SOUTH CAROLINA**  
**Department of Health and Environmental Control (DHEC)**

### Site Data

**SITE ID #** 01589 **COUNTY** Charleston  
**FACILITY NAME** Circle K 2720886

### Slug Data

See Appendix K Table \_\_\_\_\_ Figure \_\_\_\_\_ for a list of all data measurements  
 (Water levels logs, etc.) (Complete as appropriate)  
 Water Level Recovery Data was measured by Water level indicator.  
 (Hermit Data Logger, Manually with Water Level Indicator, etc.) (List Method).  
 Complete the following table for each well tested.

#### COMPLETE A SECOND SHEET IF MORE THAN FOUR WELLS ARE TESTED

Slug Test Conducted in well(s) number	<b>MW-1</b>	<b>MW-22</b>	<b>MW-24</b>
Initial Rise/Drawdown in well (feet)	<b>5.05</b>	<b>2.61</b>	<b>4.63</b>
Radius of well casing (feet)	<b>0.083</b>	<b>0.083</b>	<b>0.083</b>
Effective Radius of well (feet)	<b>0.354</b>	<b>0.354</b>	<b>0.354</b>
Static Saturated Aquifer Thickness (feet)	<b>35</b>	<b>35</b>	<b>35</b>
Length of Well Screen (feet)	<b>10.0</b>	<b>10.0</b>	<b>10.0</b>
Static Height of Water Column in Well (ft)	<b>7.18</b>	<b>8.04</b>	<b>8.04</b>

### Calculations

See Appendix K Table \_\_\_\_\_ Figure \_\_\_\_\_ for calculations. (Complete as appropriate).  
 The method for aquifer calculations was Bouwer-Rice (i.e. Bouwer-Rice, Cooper, etc.)  
 Calculated values by well were as follow:

Slug Test Conducted in well(s) number	<b>MW-1</b>	<b>MW-22</b>	<b>MW-24</b>
Hydraulic Conductivity (feet/year)	<b>139.978</b>	<b>81.76</b>	<b>74.533</b>

Thickness of aquifer used to calculate hydraulic conductivity was 35 feet  
 The aquifer is        confined        semi-confined   x   water table (check as appropriate).

The estimated seepage velocity (V) is 2.76 feet per year based on  
 A hydraulic conductivity (K) of 98.757 ft/year, a hydraulic gradient (i) of 0.012 ft./ft., and a  
 porosity (n) of 0.43 percent for silty sand soil (list type i.e. silty sand, clay, etc).

**SUMMARY of SLUG TEST**

## Summary of Secondary Aquifer Groundwater Flow Characteristics

### (Lower Extent)

Site: Circle K 2720886, 4315 Savannah Highway, Ravenel, SC

UST Permit Number: 01589

#### Horizontal Groundwater Flow Gradient:

higher groundwater elevation – lower groundwater elevation

separation distance between wells (in feet)

01589 DMW-3 and 01589 DMW-2

$$\frac{19.68 - 10.56}{298.125} = 0.031 \text{ ft/ft}$$

298.125

#### Seepage Velocity ( $V = Ki/n$ )

V = Seepage Velocity in ft/year

K = Hydraulic Conductivity in ft/year

i = Horizontal Gradient

n = porosity (value selected in relation to grain size analysis of soil samples collected from the screened intervals of groundwater monitoring wells 01589 DMW-1, 01589 DMW-2 and 01589 DMW-3 and table C1 of the South Carolina Risk-Based Corrective Action for Petroleum Releases document dated May 15, 2001 )

36.314 ft/year in 00317 DMW-1;

48.654 ft/year in 00317 DMW-2;

41.464 ft/year in 00317 DMW-3;

42.144 ft/year average

$V(\text{deep}) = \frac{(42.144)(0.031)}{0.43} = 3.04$  feet per year groundwater flow velocity to the northeast

0.43

## SUMMARY of SLUG TEST

**SOUTH CAROLINA**  
**Department of Health and Environmental Control (DHEC)**

### Site Data

**SITE ID #** 01589 **COUNTY** Charleston  
**FACILITY NAME** Circle K 2720886

### Slug Data

See Appendix K Table \_\_\_\_\_ Figure \_\_\_\_\_ for a list of all data measurements  
 (Water levels logs, etc.) (Complete as appropriate)  
 Water Level Recovery Data was measured by Water level indicator.  
 (Hermit Data Logger, Manually with Water Level Indicator, etc.) (List Method).  
 Complete the following table for each well tested.

**COMPLETE A SECOND SHEET IF MORE THAN FOUR WELLS ARE TESTED**

Slug Test Conducted in well(s) number	<b>DMW-1</b>	<b>DMW-2</b>	<b>DMW-3</b>	
Initial Rise/Drawdown in well (feet)	<b>31.24</b>	<b>31.45</b>	<b>31.63</b>	
Radius of well casing (feet)	<b>0.083</b>	<b>0.083</b>	<b>0.083</b>	
Effective Radius of well (feet)	<b>0.167</b>	<b>0.167</b>	<b>0.167</b>	
Static Saturated Aquifer Thickness (feet)	<b>35</b>	<b>35</b>	<b>35</b>	
Length of Well Screen (feet)	<b>5.0</b>	<b>5.0</b>	<b>5.0</b>	
Static Height of Water Column in Well (ft)	<b>33.89</b>	<b>30.75</b>	<b>39.35</b>	

### Calculations

See Appendix K Table \_\_\_\_\_ Figure \_\_\_\_\_ for calculations. (Complete as appropriate).  
 The method for aquifer calculations was Bouwer-Rice (i.e. Bouwer-Rice, Cooper, etc.)  
 Calculated values by well were as follow:

Slug Test Conducted in well(s) number	<b>DMW-1</b>	<b>DMW-2</b>	<b>DMW-3</b>	
Hydraulic Conductivity (feet/year)	<b>36.314</b>	<b>48.654</b>	<b>41.464</b>	

Thickness of aquifer used to calculate hydraulic conductivity was 35 feet  
 The aquifer is \_\_\_\_\_ confined \_\_\_\_\_ semi-confined \_\_\_\_\_ x \_\_\_\_\_ water table (check as appropriate).

The estimated seepage velocity (V) is 3.04 feet per year based on  
 A hydraulic conductivity (K) of 42.144 ft/year, a hydraulic gradient (i) of 0.031 ft./ft., and a  
 porosity (n) of 0.43 percent for sand soil (list type i.e. silty sand, clay, etc).

**SUMMARY of SLUG TEST**

ATC Group Services, LLC  
 7499 Parklane Road, Suite 112  
 Columbia, SC

**PRODUCT BAILOWN TEST DATA**

Project: Circle K 2720886  
 Address: 4315 Savannah Highway, Ravenel, SC  
 Date: July 17, 2019

Well Id: Rw 6

Static Depth to Product (feet): 1.59  
 Static Depth to Water (feet): 4.40  
 Volume Bailed (gallons): 10.0 gals

	Depth to Product (feet)	Depth to Water (feet)
initial measurements		
following baildown	4.40	4.41

Elapsed Time	Depth to Product (feet)	Depth to Water (feet)
1 minute	3.34	3.35
2 minute	3.10	3.11
3 minute	2.90	2.92
4 minute	2.76	2.80
5 minute	2.68	2.72
10 minutes	2.49	2.57
15 minutes	2.43	2.53
20 minutes	2.41	2.54
25 minutes	2.39	2.55
30 minutes	2.38	2.56
35 minutes	2.37	2.57
40 minutes	2.36	2.58
45 minutes	2.36	2.61
50 minutes	2.35	2.61
55 minutes	2.34	2.62
60 minutes	2.34	2.62
70 minutes	2.32	2.62
80 minutes	2.31	2.64
90 minutes	2.31	2.67



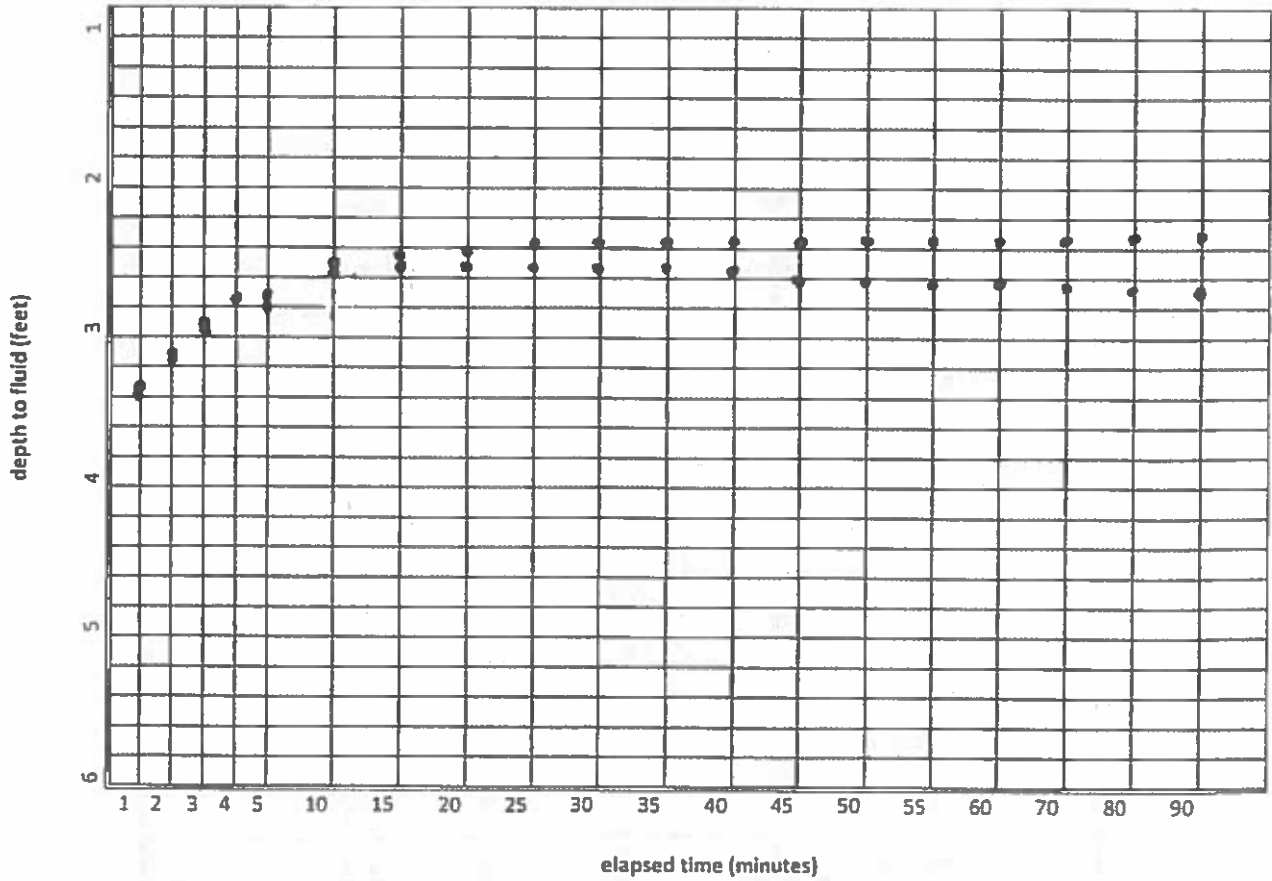
# PRODUCT BAILODOWN TEST GRAPH

(depth to water - depth to product at water table recharge inflection point = true product thickness)

Project: Circle K 2720886  
Address: 4315 Savannah Highway, Ravenel, SC  
Date: July 17, 2019

Well Id: D1589 RW-6

Static Depth to Product (feet): 1.59  
Static Depth to Water (feet): 4.40  
Measured Product Thickness (feet): 2.81  
Volume Bailed (gallons): 10 gallons  
True Product Thickness (feet): 0.10 feet



■ = depth to product  
■ = depth to groundwater

ATC Group Services, LLC  
 7499 Parklane Road, Suite 112  
 Columbia, SC

**PRODUCT BAILOWN TEST DATA**

Project: Circle K 2720886  
 Address: 4315 Savannah Highway, Ravenel, SC  
 Date: July 17, 2019

Well Id: RW5

Static Depth to Product (feet): 1.73  
 Static Depth to Water (feet): 4.23  
 Volume Bailed (gallons): 13 gals

	Depth to Product (feet)	Depth to Water (feet)
initial measurements following baildown	NM	5.74

Elapsed Time	Depth to Product (feet)	Depth to Water (feet)
1 minute	NM	5.31
2 minute	NM	4.93
3 minute	4.38	4.39
4 minute	3.74	3.96
5 minute	3.71	3.78
10 minutes	3.07	3.19
15 minutes	2.76	2.95
20 minutes	2.57	2.81
25 minutes	2.48	2.77
30 minutes	2.42	2.76
35 minutes	2.40	2.76
40 minutes	2.37	2.76
45 minutes	2.36	2.78
50 minutes	2.34	2.79
55 minutes	2.33	2.82
60 minutes	2.33	2.83
70 minutes	2.32	2.87
80 minutes	2.32	2.89
90 minutes		

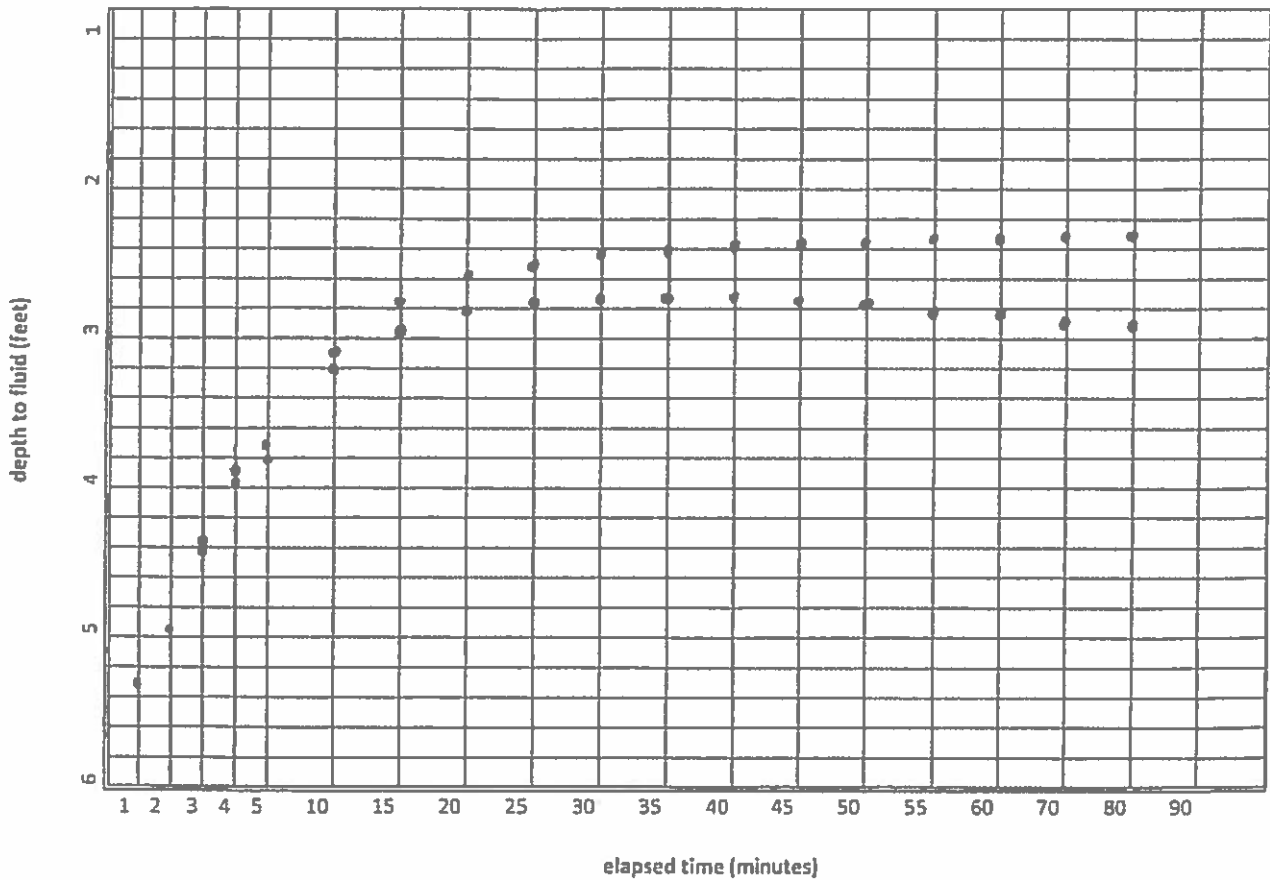
# PRODUCT BAILOWN TEST GRAPH

(depth to water - depth to product at water table recharge inflection point = true product thickness)

Project: Circle K 2720886  
Address: 4315 Savannah Highway, Ravenel, SC  
Date: July 17, 2019

Well Id: 01589 RW-5

Static Depth to Product (feet): 1.73  
Static Depth to Water (feet): 4.23  
Measured Product Thickness (feet): 2.50  
Volume Bailed (gallons): 13 gallons  
True Product Thickness (feet): 0.39 feet



● = depth to product  
○ = depth to groundwater

